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ORIGINAL ARTICLES.

THE ORIGIN AND DEVELOPMENT OF LATERAL CURVATURES AND THEIR PREVENTION.

HENRIC SPARRE, M.D., PITTSBURG, PA.

Although the minimum estimate for the number of cases of lateral curvatures which have come under my observation during thirty-six years of professional practice is, probably, six hundred, I have been unable to demonstrate the generally accepted theory that the cause of this deformity is to be found in the muscles. The farther I have departed from this positive fallacy, the more my efforts have been successfully rewarded, and gradually I have been able to prove that the cause originates in central nervous disorders. Therefore the deformity is a culmination of a series of consequences governed by mechanical laws. I cannot cite one instance where the cause could be traced to the muscles, vertebræ, or to the cartilages.

The following arrangement of the principal nervous disorders which are the cause of lateral curvatures, is the order of the percentage in the cases which I have observed, viz.:

(a) Infantile Paralysis;
(b) Spinal Meningitis;
(c) Spinal Irritation.

The disorders that are liable to terminate in lateral curvatures are too numerous to here enumerate. They are central neuroses, either directly or as immediate consequences. However, the same principle is indicated in the treatment of all.

Infantile paralysis caused fully seventy-five per cent. of these cases. It is an acknowledged fact that this disease invariably produces nervous shock in a greater or lesser portion of the spinal cord. This suspends the action of that part as a consequence of the degree of stagnation in the venous circulation from it and the influx of arterial blood to it caused by the shock. That the spinal cord recovers its normal condition, in some cases, is undoubtedly due to the light degree of the shock and the stronger and healthier condition of the patient. In these cases no detrimental consequences to the spinal cord will ensue.

I would refer to a paper in which I have shown that the distribution of the blood and the exchange between it and the surrounding tissues through exosmosis and endosmosis, can be entirely controlled by remedial gymnastics. If the shock to the spinal cord has been so severe that the effect remains as an independent difficulty after the cause for the original disturbance has passed, it has become chronic, *i. e.*, the venous circulation from that part of the spinal cord and the influx of arterial

blood to it has been permanently diminished. Those parts of the body which derive their principal innervation from the portion of the spinal cord thus impaired, naturally will not receive the normal amount of nerve force, which must seriously interfere with the muscular actions.

If the disturbance has begun in the lumbar region, the legs will be affected, and the cervical region will suffer in sympathy in proportion to the severity. If, however, the shock affected the cervical region, the lumbar region may slightly suffer, and, possibly, not at all. The proportion of these cases has been in the ratio of one in the cervical region to seven in the lumbar. In cases where the weakness began in the lumbar region, the muscles of the leg were affected; if an arm only was affected, the weakness first appeared in the dorsal region. In these latter cases curvature rarely becomes severe.

After some time has elapsed it will be noticed that the child drags a leg, an indication that the action of the psoas major and the iliac muscles is weak, and the nerve-force is diminished.

The normal contraction and expansion of the psoas and the iliac muscles are most important assistants in aiding the normal flow of the venous blood returning from the legs. Therefore diminished energy of action will quickly reduce the volume of blood flowing through that leg. As all the muscles below the knee help to support the foot, a diminished volume of blood circulating through them will check their development, the arch of the foot will gradually become flat, the foot and the ankle turn or bend inward. The flexors are stronger than the extensors in supporting weight, and they receive a greater combined nerve-supply than the extensors. Therefore, if the shock to the spinal cord has affected the whole portion furnishing motor-force to the muscles below the knee, when recovery begins the involuntary impulse received by the flexors will overpower that to the extensors, flexing the foot permanently and practically paralyzing the latter muscles.

A muscle cell is comparable to a closed cylinder. In contracting, the ends approach each other, forcing outward the sides. This exerts strong mechanical pressure upon the arterial vessels situated between the muscle threads, thereby affecting an exosmosis of blood corpuscles to supply the material designed by nature. The efficiency of exosmosis depends upon the amount of pressure, which again directly depends upon the energy of nerve-force inducing the contraction. The energy of nerve-force may be so interrupted that exosmosis will be reduced below the amount necessary not only for any development or growth, but even for the maintenance of the containing tissues. This is atrophy, and it conclusively proves that the deformity is the result not of a muscular disease, but of a central nervous disorder.

The arterial and venous circulation in muscle will be impeded in proportion to the energy of contraction.

The arterial blood in the muscle will accumulate, and during relaxation a greater volume will enter the vessels within, distributing larger blood waves through all ramifications and filling them ready for the succeeding contraction.

The venous blood from the muscles will continue to flow toward the heart, and the increased suction by expansion in them will increase the speed of flow in the venous vessels within the muscles, causing an energetic absorption of waste matter in their tributaries. These actions, intermittently affecting antagonizing muscles, which keep the volume of arterial blood and the speed in the venous circulation normal, thus depend upon the nerve-energy of muscle contraction and expansion. The influence of nerve-force upon the general circulation, and also the innumerable consequences of disturbed distribution, is obvious.

Defective and diminished nerve-force will decrease the volume of circulation—exosmosis depending only upon the size of the blood waves—and this will check the development of all the tissues concerned. Hence, the growth of the entire leg will be interrupted in proportion to the reduction of nerve-force. The development and growth of every part of the leg, including the bones, from the induction of nerve-force causing muscular contraction to the development of blood corpuscles

for exosmosis into the tissues, is a species of morphosis governed entirely by mechanical laws.

The growth of the leg diminished, the disparity in length immediately begins. The pelvis slants toward the shorter leg, and with it the surface of the first sacral vertebra, forcing the spinal column out of equilibrium. To counteract this an increase of involuntary contraction of the muscles connecting the pelvis, the first and second lumbar, the lower dorsal vertebræ and the false ribs, will draw the column to the other side, thus producing the lumbar curve. As the whole upper portion of the dorsal column will incline toward the affected side, it is necessary to regain equilibrium by drawing the upper portion of the column, the cervical following, to the other side of the dorsal middle line, forming a curve, thus completing the scoliosis. Deformity increases with the disparity in the legs, and because of the detrimental influence upon general health by progressively decreasing capacity of the abdominal and chest cavities obstructing the functions of the vital organs within, it is obvious that the effect upon the entire body is disastrous.

The surface of the first sacral vertebra is sharply inclined toward the abdomen; the cartilages between the bodies of the lumbar vertebræ are considerably thicker in the anterior than in the posterior portion, thus forming the natural bend of the spinal column in the lumbar portion. The supra-spinous ligament holds the spinous processes in line one above another so firmly that comparatively very little lateral play of the spinous processes is possible. The bodies of the vertebræ, held together by the anterior and posterior common ligaments, are more liable to lateral motion than are the spinous processes.

Now, the upper surface of the first sacral vertebra, upon which the spinal column rests, is sharply inclined toward the abdominal cavity, and by leaning sidewise it will, also, so incline. The bodies of the vertebræ will swing farther to the sides than the spinous processes, following the periphery of a circle, the radius of which extends through the middle of a vertebra from the anterior surface of the body, through the spinous process, to a center which would be about two inches from the end of the spinous process, if the line be continued. This allows of rotation in the lumbar curve, and like conditions will admit of rotation in the dorsal region when the spinal column crosses the middle line. Proportionately, this increases with the disparity in length of the legs.

The muscles of the lumbar region on the lower side will follow the rotation of the vertebræ and project backward; those on the opposite side will sink inward. The vertebræ in the dorsal region, forming the upper part of the scoliosis, naturally will swing outward, bringing the bodies in a curve larger than that formed of the spinous processes. The transverse processes, with the ribs attached to them, will not only be forced backward, but through the pressure of the intervening cartilages, the bodies will be inclined inward, and on that part of the curve will cause the ribs to separate in fan-shape, while it closes them on the opposite side. This will bring the one shoulder blade upward-backward, and sink the other downward-forward.

The intervertebral cartilages, through one-sided pressure, take the shape of the space between the bodies of the vertebræ. When so pressed that elasticity has decreased to nearly the utmost limit, then, and not before, will considerable deformity of the bodies of the vertebræ result, caused by the continually increasing pressure. It is unnecessary to dwell upon the disastrous effects to the abdominal and pectoral viscera or to the reduced space and altered shape of the abdominal and chest cavities interfering with the development of the organs within them.

At the first indication of checked growth in the leg, an even sole (not wedge-shaped) should be placed under the shoe to prevent tilting of pelvis. The thickness should be in proportion to the disparity; a difference of more than 3-32 inch should not be allowed. A wedge-shaped shoe will throw the spinal column backward so as to be supported only by the abdominal muscles, forcing the upper part with the shoulder blades forward in order to maintain equilibrium, thus establishing lordosis and kyphosis, consid-

erably reducing the abdominal cavity, and compressing the chest. As one leg only is affected it will also cause rotation of the spine, and the result is a seriously complicated curvature. At best the wedge-shaped sole will only partially prevent the forming of the scoliosis. Moreover, contraction of the flexors and shortening of the tendons will paralyze the extensors if not already done by the spinal disturbance.

The anterior and posterior longitudinal veins in the spinal canal, which are plexuses formed by uniting branches from the veins which enter the canal from the bodies of the vertebræ, from back of the transverse processes, and from between the spinous and the transverse processes, constitute within the intervertebral cushions a circle with which branches of the medullispinal veins accompanying the nerves given off from the cord communicate.

By pressing with the thumb on each side of the spinous processes in the angles formed with the transverse processes, the venous blood from both dorsal spinal veins may be prevented from entering the ring. The flow in the longitudinal veins of the canal continues, but the circle will soon contain less blood and considerable suction will ensue. Hence, the venous circulation will be hastened and the influx of arterial blood will be increased. This pressure should begin at the first cervical vertebra and be continued about ten seconds, thence systematically down the entire spinal column between each pair of vertebræ. Repeat this procedure thrice at each treatment. Treatment should be repeated twice daily. Thus the circulation of the spinal cord may be quickly and permanently restored to the normal.

It is generally conceded to be a difficult task to reduce an irritation of the spine. In severe cases the strongest counter-irritants are applied without avail. What is an irritation but interrupted venous circulation in the cord causing a diminished influx of arterial blood? The treatment indicated controls the circulation of the spinal cord entirely. If it is used in the early stages of the disease it will prevent diminished growth and all serious consequences to the limbs, pelvis, and the vertebral column.

It is advisable to treat the patient when there are indications of abatement of the acute shock. But I should not wait two weeks to see how far nature could restore itself, as this treatment will assure prevention of serious interference with the action to nerves and limbs.

In the majority of these cases the blood is impoverished, the body insufficiently nourished, and it demands increased assimilation. To accomplish this the patient should lie on the back, with knees drawn up to about sixty degrees, while the feet are supported to allow relaxation of the thighs and abdomen. The operator should place the tips of his fingers toward the patient's hips, and cross his thumbs over the upper part of the umbilical region. He should then draw the thumbs, with pressure, from the center outward until he reaches the inner line of the colon on each side in the lumbar region, and follow this downward in parallel lines, the lower over-lapping the one above to insure that every part has been subjected to the pressure, until it reaches to the cecum, across above the bladder, and to the sigmoid flexure. This movement should be carefully repeated four or five times. The movements have the effect of natural peristalsis, and by pressing the epithelium against the food matter, thus force more chyle to the inner intestinal surface and increase absorption (assimilation). Repeat this treatment twice daily, at least one hour after meals.

In case of irritation of the spine, resulting from infectious disease or sprains of the back, if the treatment to restore normal venous circulation from the spinal cord and that to increase assimilation are applied together, after the abatement of the acute shock, all detrimental effects will be prevented. Longer continuance of the treatment may, however, be advisable.

I have not had the satisfaction to receive cases of this kind before they were far advanced, but in every one of the large number that I have treated, it has not taken over six weeks, two treatments daily, to reduce chronic inflammation or irritation, although the interrupted nerve-action of the spine may have affected other parts of the body so seriously that it required one year's treatment, and in extremely

severe cases cure may not have been entirely effected, although the patients were practically restored. This treatment is preventive and cannot be applied to chronic cases.

If the venous circulation from the attacked portion of the spinal cord has not been restored to normal within a fortnight after the first interruption it will be permanently interrupted and the interference with the nerve action will become chronic. If this has affected that portion of the spinal cord connected with the motor nerves of the leg the nerve-force from it inducing muscular action in the leg has been interrupted. Energetic contractions and accompanying relaxations are requisite to keep the volume of the circulation normal.

The function of the flexors is to carry the weight of the body while walking, and that of the extensors merely to extend the flexors. As the nerve supply required for the normal action of the flexors greatly exceeds that necessary for the extensors, when the acute shock to that section of the spinal cord supplying nerve-force to the muscles below the knee subsides, and revival begins, the flexors in proportion to size will receive more combined involuntary nerve-force than the extensors and overpower them so strongly that the result amounts to contraction of the limb.

In the early stage it is possible for the patient to counteract the overpowering influence of the flexors, but only by using all the voluntary nerve action at command. When this force temporarily gives out the flexors will resume their gradual contraction. If nature is not assisted at this important time, the disparity will gradually increase until all efforts from the extensors in affecting the slightest contraction will be ineffectual, with the final result of paralysis of the extensors.

If the physician in charge will take the following precautionary measures paralysis will be prevented. The operator, while sitting, should take the affected foot of the reclining patient (if the right foot placing it on the operator's left knee), and while holding the ankle lightly with his left hand, grasp the foot with his right hand and bend the foot upward in the direction of the action of the extensors. In the meantime the patient should resist this movement as strongly as possible. This should be repeatedly continued until the patient's power of resistance is exhausted. Then direct the patient to contract the extensors while the operator resists this motion nearly as strongly as the patient can easily overcome it by pressing his hand above the foot; the resistance should be in the direction of the tangent, the foot being considered as the radius.

Immediately after this treatment the outflow of venous blood from the extensors should be promoted by rubbing them upward with the fingers of one hand. Immediately after knead them, then slap them gently with the finger ends all the way upward.

The treatment should be given in the order prescribed, twice daily, at least one hour after meals.

First—Spinal.

Second—Assimilative.

Third—Leg.

The first and second should be continued twice daily until the normal growth of the leg is resumed, and the third should be continued a fortnight and resumed if there are indications of tendency of the flexors overpowering the action of the extensors.

The Name of God in Forty-eight Languages.

Hebrew, Eleah, Jehova; Chaldaic, Eiliah; Assyrian, Eleah; Syrian and Turkish, Alah; Malay, Alla; Arabic, Allah; languages of the Magi, Orsi; Old Egyptian, Teut; Armenian, Teuti; Modern Egyptian, Teun; Greek, Theos; Cretan, Thios; Aedian and Dorian, Ilos; Latin, Deus; Low Latin, Diex; Celtic Gaelic, Diu; French, Dieu; Spanish, Dios; Portuguese, Deos; Old German, Diet; Provincial, Diou; Low Breton, Done; Italian, Dio; Irish, Dia; Olotu tongue, Deu; German and Swiss, Gott; Flemish, God; Dutch, God; English, God; Teutonic, Goth; Danish and Swedish, Gud; Norwegian, Gud; Slav, Buch; Polish, Bog; Polacca, Bung; Lapp, Jubinal; Finnish, Jumala; Runic, As; Zemblian, Fetiza; Pannonian, Istu; Hindostanee, Rain; Coromandel, Brama; Tartar, Magatai; Persian, Sire; Chinese, Prussa; Japanese, Goezer; Madagascar, Zannar; Peruvian, Puchecammae.

SOME OF THE COMMON CAUSES OF MORTALITY IN ABDOMINAL SURGERY.

JOSEPH PRICE, M.D., PHILADELPHIA.

To reason concerning mortality in surgical work is to consider finally its entire field and treatments. It is mortality that we combat. To speak of mortality in relation with surgical achievement is to relate the entire advantage of surgery. Such a discussion would be impossible. We may discuss the expediency in restricted lines profitably, but an infinite labor would be involved in accurately determining a conclusion from the surgery of to-day. It lies within our power to generalize, however, upon this subject, and to infer from the many presentations of worthy co-workers, together with our own personal experience, certain forceful evidences of judicious direction in operations.

Foremost among the attributes of success I place operative skill, that is, a wise, serious, clever artisan; a good workman; a confident operator, sure and rapid; a man abundantly capable for every emergency, with a constant reserve of power and resource to meet any contingency. This simply means a painstaking scholar, whose close attention and perseverance have developed a power of performance. A professional aspirant of any stamp aims at a perfecting of his parts to his peculiar work. A runner works for every respiration during strong physical exertion. His organs must adapt themselves to his new purpose. The peculiar adaptations for which the surgeon must develop are difficult of definition. For one thing, his touch-sense must have a certainty and a delicacy, supported by an accuracy of muscular control, that would do credit to a first violinist. His intelligence and fair knowledge of his art are presupposed. While speaking of the surgeon himself I would mention one other strong element in his success, that is nerve-force or vigor, which is undoubtedly essential to the successful management of an operation. He must be in a condition for a feat, must be clear, self-possessed, undisturbed by considerations foreign to his subject's immediate advantage and welfare. So very numerous and varied in form are the accidents that require the highest and most experienced surgical skill, and not a few accidents that add to our mortality, are associated with, or are direct incidents of, the surgery itself; that it is of first importance that the surgeon's ability, his fertility of resource, should be the greatest of possible attainment. To the surgeon there is a fitness in Napoleon's illustration of his own resources in emergency: "There is nothing in war, which I cannot do by my own hands. If there is nobody to make gunpowder, I can manufacture it. The gun-carriages I know how to construct. If it is necessary to make cannons at the forge, I can make them. The details of working them in battle, if it is necessary to teach, I shall teach them. In administration, it is I alone who have arranged the finances." There is something sublime in this courage, this sense of fertility of resource, this egotism, if you please. Something of it in our surgery would diminish our mortality. Timidity disturbs and unseats judgment.

Surgical courage is something other or more than temperamental. It is educated; it is a self-confidence, coming of that mastery which apprenticeship gives. It inspires and directs the doing of that which timidity shuns, appreciating possibilities, and dares when situations are desperate. The statistics of the mortality due to shirking of responsibility, to cowardice, will never be given; nor will those of ignorant, over-weaning, ill-founded confidence and rashness. Voltaire said: "One of the chief misfortunes of honest people is that they are cowardly." For the medical profession there is no *discouragement* in this statement.

The greater our successes, the more dis

satisfied we become with our failures; the more we feel and know that many of them should not occur, and the more disposed we are to inquire into their causes. Many credit failures to the use of a particular method, rather than to the unskilful use of the method, and they change to something to them new, with little, if any, better result; generally with an increase in their mortality.

The extent to which various causes influence mortality is impossible of determination, as we have no reliable statistical data upon which to found an opinion. All that we can venture are mere deductions of individual experience. No stronger duty presses upon us than that of search for the causes of our failures. Errors of diagnosis are a fruitful source of mischievous results. Beginning with mistake, all following is mistake or accident. Diagnosis in abdominal disorders is not always easy, as these are concealed troubles, and it is not always easy to get from the patient a full, clear and definite history. Not least among the surgeon's early difficulties is the tendency to concealment. It seems natural for people to shrink from disclosing their lives, even to the physician. This appears to imply a certain unworthiness in even having an ailment, much the more to give intimation of its suspected origin. One is almost inclined at times to consider Hawthorne's fancies as to the relations of moral health and physical conditions entirely truthful. The tendency of all fault is to see darkness, and people seem everlastingly occupied in screening themselves from the eyes of their fellows.

We have no resource here but unfailing science. We must be able to decide without much dependence upon the patient's story. There are, of course, exceptions, cases in which the subject is entirely frank and helpful. Many of the diseases with which we have to deal, and find the most difficult to combat, have a beastly genesis, and much is concealed from very shame.

As physicians and surgeons we know the origin of many of the gynecologic troubles for which we operate; the complications and sequelæ are always of serious concern. Unfortunately, many of the patients fill the sacred office of wife and mother. In all, and to all, we are enjoined to a sacred silence. These diseases in operative cases increase mortality to an extent not indicated by death-certificates. The death-certificate makes no note, perpetuates no record of that which the law, in its questionable charity, passes as unindictable crime.

Outside of hospitals general and private, the practitioner encounters unfavorable conditions, those affecting his mortality, which he cannot control, however zealous and enlightened may be his endeavors. He finds in homes and their environment miserable hygienic conditions, and that which not infrequently goes along with such conditions and which our science and art are powerless to correct, depraved social life.

The morale of the patient has always much to do with the successful termination in all cases of surgical interference. It is very essential that the patient should be bright, cheerful and hopeful. The patient's trouble should always be presented to her with great frankness and tact, in the simplest and most intelligible forms of expression. There should be no deception, no use of words exciting unnecessary alarm. There are certain offensive expressions that exercise a very vicious influence over the patient, such as: "You have a tumor; it will have to be cut out," "You will have to be opened," "Madam, you will have to go under the knife." Inspiring and sustaining a healthy and hopeful morale is a duty with both nurse and surgeon.

So-called shock is, in a majority of cases, the result of or is caused by hemorrhage. Fatal shock may be caused by the enucleation of a densely adherent tumor over the large ganglions of the sympathetic nervous system. The tendency to this can be noticed in a more or less marked degree while the operation is in progress by failure of pulse, sighing, irregular respirations and the appearance of the patient, which is that of impending death. There is no question but that many of the cases put back to bed after operation in a moderately good condition gradually sink and die in from twelve to sixteen hours from hemorrhage, and not from so-called surgical shock. Shock is

less frequent than formerly. It is avoided through our less barbarous methods of treatment. When it occurs, it is largely due to prolonged operations, prolonged anesthesia, the violence of operations about vital parts, excessive use of ligatures and sutures. Occasionally we read reports of cases requiring forty or fifty ligatures to control hemorrhage. The same operation in the hands of some other operator would probably have required but one. The anesthesia and the operation are prolonged in the application of ligatures. Excessively hard tying causes great pain and adds to the shock. A hot irrigation-toilet, when filth and debris exist, speedily cleanses and favors reaction. The hot water is taken into and stimulates the circulation. Rapid operation is an important factor. Tolerant as may be the peritoneum, there is a limit to the impunity with which it may be exposed without risk. Chill adds to shock, and an unclean atmosphere to danger of infection and septic peritonitis.

The chances of infection and hernia are less with a small incision. The length of the incision must be regulated by the size and the character of the growth. In cases of the removal of hard irreducible growths the incisions are necessarily large. Our mortality is increased by not taking into consideration other organs than the diseased one, or the special trouble for which we operate. There may be diseased lungs, heart or kidneys, the history of some inherited trouble, and other important considerations. It is needless to name those cases in which the risk is greatest, the mortality high. One of a group calls attention to facts associated with others. We know that puerperal suppurative peritonitis commonly results fatally, especially if more is attempted than irrigation and drainage. Extirpation of the so-called septic uterus is uniformly fatal.

Curettage practised after abortions and fancied abortions is commonly followed by violent septic peritonitis. Section, irrigation and drainage will save life under these circumstances. General tuberculous peritonitis results in death unless surgically treated. Section, with the freeing of all adhesions and drainage or no drainage, results in the majority of cases in cure. Now as always I place special stress on irrigation and drainage, and urge the utmost refinement of every detail of the surgery. The most *unsurgical of all practices* is that of "reliance upon the ability of the peritoneum and general system to eliminate infectious matter," without the aid of drainage.

Such teaching is positively bad whether carried on in our schools, private clinics or from the chairs of our medical societies.

To patient, physician and surgeon the nurse's office is one of pre-eminent importance. The practitioner, general surgeon and those following special lines of surgery have learned from many disappointments and painful experiences the extent to which ignorant, careless and inexperienced nursing has contributed to their mortality. The matter is one of equal interest to physician and surgeon. Societies, scientific and philanthropic, have greatly improved the personnel and education of our nurses. There is much yet needed to elevate the standard of nursing to what it should be. Too many attempt the office with little elementary education, some without the least pretence to a common-school education. There is needed culture combined with natural intelligence and aptitude. Nurses are sometimes socially uncongenial, unfortunately possessing those peculiarities of disposition that render them positively offensive to patients.

Nurses should be impressed with the responsibility and dangers incident to their work, that theirs is the care of a life, in maternity cases of two lives, and that everything associated with the welfare of their patients should be studied with an intelligent interest. They must have a general inclination to forbearance and everlasting patience, must be wise and, before all, cheerful. The doubt and fear that undoubtedly find place in the patient's mind prior to the operation should find no confirmation in the manner of the attendant. The circumstance is no matter of gaiety, yet there must be suggested to the patient a confidence and support in the persons of the physician and nurse.

The progress of disease cannot but develop distress, mental and physical, in the surmounting of which lie the art and the utility of the nurse. This art is not all a gift. So much strangeness and uncertainty sur-

round life that the smallest bodily ills receive the most serious attention and become often great afflictions through exaggerated thought. This state the nurse can aggravate through unguarded speech or conduct. It is her duty to have a solicitude independent of affection and ties of kinship. Our subjects are usually depressed in spirit by reason of their malady and the constant consideration of their condition; and large and difficult is the office of the nurse in removing this depression.

Order and taste in the apartments, the pleasant appearance of the nurse and her evenness of temper are of course well-understood elements in the sufferer's welfare. But beyond all this there must be a considerateness of speech on the attendant's part that shall serve without fail to divert attention from the ailment. Conversation should be limited and the nurse's words carefully judged and modified for the character of her subject and growth of confidence. They should always be words of encouragement and hopeful stimulus. There should be little or no talk about disease or operations.

The idiosyncrasies, the eccentricities of the patient should be noted, the peculiar habits and the trend of thought studied and directed in healthy and hopeful channels. That the nurse should in morals be without even the suspicion of blemish, in speech, in entire person, clean, cannot be questioned. There is nothing so subtle in its infective, septic influence as moral filth, whether in physician or nurse.

The nurse must be thoroughly trained, and must have much of a surgeon's courage to deal with grave conditions without feeling or manifesting alarm. Repeatedly I have heard physicians say after witnessing an operation: "Doctor, there is little chance for that woman," while the experienced attending nurse made no sign of any other confidence than that of a successful result. She should do everything cleanly, quickly, deftly and not wear the patient out by her sleepy, slow, clumsy motions.

Nursing must be something more and better than merely mechanical; it must have brains, educated hands, the quick intelligence and spirit to appreciate and respond quickly, quietly and intelligently to all the wants and necessities of the patient. The ranks of our nurses have been too largely recruited from that class who on retiring to bed throw their clothes on the floor and kick them under the bed.

There is no means of determining the percentage of mortality caused by dirt, uncleanness, dirt somewhere about the person, the hands, the fingers, the clothes, instruments, the fine English cut or patriarchal beards of the operators, about the room and its appointments, the bed, and its clothing. Antisepsis cannot correct the mischief; it in itself is not always harmless.

Too much has already been said in favor of the doctrine of antisepsis, and too little urging the practice of asepsis. The surgeon who has reduced and kept his mortality low must acknowledge his debt to scrupulous care as to aseptic conditions. These are obtainable conditions. We repeatedly have coming into our hands cases in which the chances for and against recovery are very evenly balanced, and but little dirt or that with septic taint will turn the balance against us. In abdominal operations the surgeon should commence clean, wash out clean, and drain. The drainage-tube will keep the general cavity of the peritoneum free from all septic and abnormal contents, and decomposing ooze. We know that for those extraneous conditions producing septic infection, the surgeon and the nurse are largely responsible. We further know when septic infection is carried into the peritoneal cavity or arises from some internal cause, that unless it is promptly and thoroughly dealt with, the patient dies. We know that patients die when we depart from certain well-settled rules.

BABY'S TURN NEXT TIME—Mrs. Briske.—"Johnny, did the doctor call while I was out?"

Little Johnny (stopping his play).—"Yes'm. He felt my pulse, an' looked at my tongue, and shook'd his head and said it was a very serious case, and he left this prescription and said he would call again before night."

Mrs. Briske.—"Gracious me! It wasn't you I sent him to see; it was the baby."

HYSTERIA.

ENOS S. MANN, M.D., Columbia, Pa.

Hysteria is a term applied to a morbid condition of the nervous system, of unknown pathology, characterized by convulsive seizures, and by departure from the normal in the functions of various organs, and manifesting itself by a great variety of symptoms of a perplexing nature.

Etiology.—The manifestations of hysteria are most frequent in females of the Latin race, by heredity of nervous temperament, and are largely dependent upon environment. While the theory of uterine causation is no longer accepted, doubtless a majority of hysterical women suffer from some disorder, real or imaginary, of the reproductive system. Gowers, probably, comes nearest the truth when he says that, "the liability of females is probably determined by the character of their nervous system, and not by the possession of certain sexual organs."

Other causal factors are ill-directed education, luxury, physical weakness, as from anemia, long-continued sickness, or wearisome nursing of the sick; unfortunate marriage, self-centred sympathy, sexual excess, peripheral irritation, etc. Exalted or depressed emotion is a factor, or intensifies the already existing condition.

Symptomatology.—In the whole catalogue of maladies there is none having a greater variety of manifestations.

Symptoms are produced which may be referred to any function of the body. A peculiar form of convulsion is held to be the most characteristic feature.

In a brief description of this affection, I may mention only some of the more frequent forms which the neurosis takes.

Mental.—Emotional disturbances or fickleness is a distinctive feature of the hysterical condition. From the most trifling or meaningless cause the patient will cry, or laugh, or become convulsed, and this, too, utterly beyond their control. Intelligence may be beyond question, but it is abnormally sensitive and self-centred; judgment is weak, although memory may be good. There is inability to concentrate the mind on a subject for any length of time, and, usually, there is a decided lack of will power. The normal nature is without vigor, and there exists a morbid desire for the sympathy and interest of others. Thus, there often is a tendency to deceive, and to counterfeit symptoms which have no existence.

Innumerable tricks are resorted to to hold the attention of physician and friends. The mental symptoms may be manifest in disturbances from the slightest up to the graver conditions of catalepsy, trance, melancholia with suicidal tendencies, and insanity.

Sensory.—The sensory disturbances are as varied as the mental perversions. The most distressing, though not the most common, is hyperesthesia. The sensations may be referred to any portion of the body, and simulate pain indicative of other diseases. A common seat of pain, so-called, is in the head, and when referred there it is usually of a neuralgic character. The pain may be in the region of the stomach, simulating gastralgia; in the lower part of the chest, resembling intercostal neuralgia, but distinguishable from it by being more diffuse and superficial. It may occur in the region of the heart, resembling angina pectoris. Pain in the back, most frequently referred to the spinous processes of the cervical and upper dorsal region, is a very common complaint. There may be general abdominal pain closely resembling that of peritonitis, or the pain may be localized in the ovarian or the appendiceal region. Pain if felt in the hip or knee may so resemble arthritis as to deceive the very elect. Hyperesthetic areas may occur upon the trunk or limbs.

Anesthesia is a more common phenomena than hyperesthesia. This condition may

exist without the patient's knowledge. It may involve one-half the body (hemianesthesia), extending to the median line, or it may exist only in circumscribed areas. Sometimes the sense of touch is preserved while there is a loss of sense of heat and pain. The mucous surfaces are often involved as well, since, in some cases, the conjunctivæ or pharynx may be touched without exciting reflex contraction. The special senses may be involved. There may be blindness, loss of smell, taste or hearing. The sensation of a ball rising from the epigastrium to the throat (globus-hystericus), and making respiration difficult, is a very common symptom.

Motor.—As the mental and sensory departures from the normal may simulate every form of disturbance, so the motor variations may simulate any affection, from the most violent form of convulsion to complete paralysis. A great variety of symptoms arise from various local spasms, and the respiratory system furnishes the greatest number. Cough is a distressing condition. This is generally of a sharp ringing character and is noticeably influenced by moral conditions, *i. e.*, when the patient is alone it may cease altogether, or it may become very persistent after the patient has been excited by entertaining company, or after the patient's attention has been directed to it. It may occur in paroxysms terminating in a wheezing inspiration, and followed by profuse perspiration. Hiccough, yawning, or an attack resembling asthma from spasm of the bronchi may occur. Spasm of the stomach causing persistent vomiting is not uncommon, and spasm of the recti muscles forming a nodular projection known as phantom tumor is a condition that has been comparatively frequent.

Convulsive seizures closely simulating true epilepsy are of common occurrence. These seizures may be preceded by sensations resembling aura, as a sense of constriction about the chest or throat, vertigo, headache, a state of "fidgets," or the so-called "globus hystericus." In the convulsive seizures of hysteria the fall is not so sudden as in true epilepsy, the patient rather letting herself down in a more or less safe and comfortable position. The tongue is rarely bitten and consciousness is seldom lost. Movements are usually tonic and the position of opisthotonous assumed. The fall in an epileptic seizure is sudden and may occur at a place of great danger or cause painful injury; the tongue is often bitten and consciousness is lost.

Paralysis is of frequent occurrence; a single limb only may be affected or the trouble may be hemiplegic or paraplegic. In hysterical hemiplegia the face is seldom involved, the affected muscles do not waste, the electrical reaction remains and bedsores never occur. The paralysis is often of a local character. Incontinence of urine may exist from paralysis of the bladder, but without cystitis or ammoniacal urine. There is sometimes loss of speech from paralysis of the vocal cords, or there may be inability to swallow from paralysis of the esophagus.

Diagnosis.—In diagnosing hysteria considerable judgment must be used, as sufferers are prone to practice deception. In many cases it may seem best to reserve a diagnosis, even when there is not the shadow of a doubt, since although it is no disgrace to have hysteria in the family, the expression of such a diagnosis will always be more or less unpleasant. Besides, the diagnosis is often attended with the greatest difficulty, for there may be intercurrent organic disease, or organic disease with intercurrent hysteria. There are no sharp lines to be drawn, since it is difficult to tell where sanity may leave off and hysteria begin, or where hysteria ends and insanity begins. It is the changing from one symptom to another which is so often discouraging to patient and physician alike.

The characteristics of the disease which hysteria simulates must be carefully considered, in order to arrive at a proper diagnosis. In hysteria there is usually something differing from the ordinary clinical symptoms of the disease with which it may be confounded, but the mind of the diagnostician is often diverted from the most prominent symptoms. The chief manifestations are usually associated with other hysterical phenomena. It is often necessary to keep the patient under careful observation for weeks in order to arrive at correct conclusions. Care must be

exercised lest morphinism, or other drug habit be confused with the hysterical condition. Complete anesthesia may be resorted to in order to thoroughly examine various contractures. Paralyses are usually associated with anesthesia.

PROGNOSIS is difficult. Death is rare. The duration is uncertain, although ultimate recovery is usual.

TREATMENT.—The condition of the patient should be totally changed; keep her interested and occupied, and removed from unwholesome surroundings. Intercurrent disease must receive prompt attention. If the physical condition is reduced, tonic treatment and good nutritious food are indicated. Care should be exercised in the use of medicines, in order to not create a habit. Do not lose the confidence of your patient for a moment. If necessary to substitute an inert drug, do not commit the fatal error of being found out.

Great good may be accomplished by strong currents of electricity; different forms of paralyses, anesthesia and hyperesthesia, are usually benefited by its application. In hysterical convulsions the cold douche is of decided value, and for its physical, rather than moral, effect. The antispasmodics, valerian, asafetida, camphor and Hoffman's anodyne are of most value in medication. Dr. Mitchel's treatment by isolation from friends and relatives, rest, massage, electricity and feeding brings excellent results when it can be properly carried out, with the assistance of a competent nurse.

COMMUNICATIONS.

THE X-RAY IN SURGERY AND MEDICINE.

G. W. ALLYN, M.D., PITTSBURG, PA.

Last spring I presented to the Allegheny County Medical Society a request for subscriptions to a fund which was at that time nearly sufficient for the making of an X-ray machine. The idea had its inception with W. L. Scaife, on the Board of management of the Academy of Science and Art. F. F. Nicola kindly undertook to solicit the funds. In July the order was given to Prof. Fessenden, of the Western University, and most of it was made in the shops of Mr. Brashear. The machine was finished in January and placed in the rooms of the Academy of Science and Art, Carnegie Library, Pittsburg. An announcement in the shape of an application for the use of the apparatus was sent to the reputable physicians of the county.

This machine is the most powerful one in the world to-day, and remarkable results can be obtained with it. It will take a skiagraph through the hand in one second, through the body in five minutes, through the head in four minutes, and, with the fluoroscope, light can be seen through four inches of solid iron with an ordinary tube, and it is expected to penetrate six to eight inches with one of a higher grade. I believe that three-eighths of an inch of iron is the greatest thickness thus far penetrated by other machines. Thus you see our physicians have at their disposal a superior machine—in fact, two machines, for a smaller and more portable one was made at the same time.

For compactness and convenience in handling they are marvels of ingenuity. The larger outfit consists of the large coil, a circuit breaker, a dynamo to run it, and a storage battery of eight cells. The core of the coil is thirty-six inches long and one and one-half inches in thickness, and consists of one thousand soft iron wires. Wound upon this is the primary coil, consisting of two miles of copper wire. This

is encased in a strong cylinder of hard rubber. This is then surrounded by the secondary coil, consisting of seventeen spools wound with fifty miles of fine copper wire. These spools are so connected that one or all of them may be thrown into the circuit. The circuit-breaker was designed by Prof. Fessenden, and is run by the dynamo.

It may be operated by the storage battery, or by the current from the street lamps. The storage battery seems most practical and uniform in its action, producing the cathode rays in the usual well-known manner. The current is applied to the primary coil, rendering the enclosed core a powerful magnet. By induction this causes a current in the secondary coil. When *contact* is made a moderately strong impulse is given to the secondary current to leap through the air from one pole to the other, producing the well-known "spark." It is an observed fact that the strongest effect comes on *breaking* the circuit; so that within limits, say two hundred per second, the greater the number of sudden breaks in the current, the greater the intensity and the longer the "spark." The spark with the Academy's instrument is over twenty inches with the direct current, and seven and one-half inches with the alternating one. The current-breaker works to perfection. If a Crookes tube is placed in the current in the position of this spark, the cathode rays are produced *within* the tube, and the X-rays *outside* of it; and by these the skiagraph is taken, or direct inspection is made with the fluoroscope.

Current medical literature has recorded many interesting demonstrations with the X-rays. Naturally the most wonderful of these have been in the domain of surgery. Foreign bodies, whether metallic or otherwise, if opaque to the X-rays, can be located in any part of the body. Shot, bullets, flying fragments of steel or iron, gun-caps, and fragments from explosions, and even glass, can all be found and removed directly under the fluoroscope screen, or, if deep, located by skiagraphs taken from two positions.

Calculi of the bladder or of the kidney, being of lime, will cast a shadow showing size and position. Calculi of the gall-bladder, being of cholesterin, will be diagnosed with more difficulty. Blood vessels with calcareous degeneration of their wall can be traced. Dr. Lippincott, at the last meeting of the society, exhibited a skiagraph of a head showing the position of a piece of steel, which had been in the eye for some months. The steel was found at the spot indicated, and the shape answered exactly to the shadow. A case is reported from Philadelphia of a child who was suddenly rendered unable to swallow solid food. It was gradually starving without apparent disease. A skiagraph revealed a foreign body in the esophagus. Thus located it was easily removed, and found to be a small china plate.

In the surgery of the bones, the best results must be expected, as their calcareous nature renders them relatively quite opaque. In fractures, not only can the nature of the fracture be definitely determined, but the position of the parts can be inspected through the dressings, when set, or at any time should the case seem to be doing badly. In dislocations and injuries in and about the joints, as well as diseases of the joints and other parts of the bones, very positive evidence can be obtained of their real conditions, even when the soft parts are so swelled or injured as to obliterate the usual landmarks. The use of the X-rays is going to play a most important part in medico-legal cases. Not infrequently men, given to drink or otherwise worthless, bring actions against surgeons for bad conditions after recovery which were brought about by debauch or by disobedience to the surgeon's directions. A skiagraph through the final dressings of such a case would make a very opportune witness in a case for damages.

In medicine, while we cannot expect so much as in surgery, good apparatus and study will certainly bring results. When diseased organs differ in density from healthy ones, the fact will show in an examination. It has been stated that a muscle trained by exercise resists more than a flabby one. Thus far, death cannot be diagnosed, as the resistance of living tissue does not differ from dead. The escharotic effects upon the skin lead to the hope that microbes could be killed *in situ*, but a series of experiments seemed to show

that the hope could not be realized, as they seemed to thrive under its influence. Abscesses are transparent to the X-rays. Cirrhosis of the liver could not be diagnosed. An enlarged liver could be located, but this could be done by palpation and percussion.

We must look for some good results in the field of obstetrics and gynecology. In prolonged and dangerous labor, a monstrosity, a mal-position, or twins could be easily diagnosed; so, also, could extra-uterine pregnancy and dermal cysts with teeth. In the field of physiology, sufficient time has not been given for much study; yet it has been observed that, in some cases, it has had a slowing influence upon the heart. The rays do not seem to produce upon the retina a sensation of light. The patient of Dr. Lippincott, though exposed for four minutes, stated that he received no suggestion of light.

DOUBLE TALIPES EQUINOVARUS.

J. W. MACFARLANE, M. D., Pittsburg, Pa.

The case presented may prove of some interest to members of the society. The patient, Bruno Price, is twelve years of age, with a negative family history. So far as his personal history is concerned, it may be briefly stated that when he was about four years of age he suffered from some eruptive disease, in the wake of which paralysis of the lower extremities appeared. He was unable to walk, but was allowed to creep around on the floor, gradually acquiring a marked double talipes equino-varus, and this was his condition when he was brought to the West Penn hospital last October. His health was very poor at that time, and he is not strong yet.

The operation which we had been in the habit of doing was that known as Davies' operation, and consisted in cutting a V-shaped piece out of the tissues and bone from the outside of the foot, and then drawing it forcibly into position. Excellent results may be obtained from this method, but the objection to it is that the foot, which is always short in this disease, is made still shorter by the taking out of the wedge-shaped piece, and when the patient begins to walk he cannot balance himself with so much security as he could upon a longer foot.

Having this matter in view, we performed a Phelps operation, which consists of cutting down on the inner side of the foot in advance of the malleolus, beginning well up on the dorsum, and carrying the incision down to the sole of the foot, exposing, if you will, the head of the astragalus, and then forcing the foot into position, encasing it in plaster, and leaving the wound to heal by granulation. Radical as this operation is, it is followed by comparatively little pain, and the results are better than in any other operation which can be done to relieve this deformity; in addition you have a foot that is much longer.

As this was my first Phelps operation. I was averse to operating on both feet the same day, and therefore the operations were performed a month apart.

Error in Diagnosis. — When Dr. Bowling, a pioneer medical man in the South, began practice, he settled in the wilds of Kentucky, where he sat in front of his cabin for six months without a call. At last he heard the clatter of a horse's hoofs, and a lank, barefooted Kentuckian appeared. "Are you a doctor?" he asked. "Yes, and a good one," said Bowling. "What's the matter with that ar' foot?" the man inquired, placing his heel on the fence. The doctor examined it closely, and replied: "That, sir, is erysipelas." "Ery-hell!" the man replied; "a bee stung me." The doctor moved to Nashville.—*Dominion Medical Monthly.*

CURRENT LITERATURE CONDENSED.

The Psychogenesis of Fear.[1]

Fear is a psychical condition which has received comparatively scant attention at the hands of psychologists, common as are its manifestations and obscure as is its mechanism. Transcendental philosophers regard fear as the automatic stimulus for a reflex co-ordination of movements intended to protect the organism against impending injury, but the moment we begin seriously to scrutinize the outward and visible effects of this condition it becomes painfully apparent that, far from aiding escape from danger, it is often *per se* the direct and immediate cause of disaster.

"If," says Haller, "we consider the movements of a frightened animal, in imminent danger, as having preservation of life for their object, is there anything more absurd than the trembling of the knees and the sudden weakness which betray fear?" Angelo Mosso, in his very fascinating treatise on this subject, reiterates Haller's view, that the phenomena of fear common to all animals are not conducive to the preservation of the timid, but rather to their destruction, it being part of the law of nature, as understood by him, that animals destined to be the prey of others should not be able to defend themselves easily.

Without committing ourselves to this somewhat brutal hypothesis, it is a matter of common observation that fear renders the individual more vulnerable to attack, and, for the time being, subordinates the will to the influence of conflicting and often incomprehensible emotions. It is suggested that the kneeling attitude universally adopted in prayer is to be ascribed to the physiologic fact that strong emotions cause a sudden trembling of the legs and oblige us to sink to the ground. Darwin, in his "Expression of the Emotions," attributed a preponderating importance to the will as the cause of expression, but, as the author remarks, what many call free-will is only a fatal necessity, an indissoluble chain of causes and effects, of physical and mechanical actions, of automatic and unconscious reactions, in the living machine.

Hence, in studying the expressions of fear we must look to the reflex nervous apparatus, which alone can explain the explosive suddenness of the phenomena of acute fear. Physiologists recognize that stimuli accumulate in the spinal cord, which becomes slowly charged like a Leyden jar, until suddenly discharged by a contact or by some very slight impression. When we have something in the throat which tickles us, the slight and at first scarcely perceptible irritation by-and-by becomes intolerable, and in the functions of reproduction the repetition of slight stimuli produces greater and more and more uncontrollable reflex movements.

Such an explosion seems out of all proportion to the momentary and trivial cause, but this is because we overlook the fact that the force has been accumulating until, to borrow an expression from physics, its tension is greater than the pressure of the will. It is, he observes, the quantity, not the quality, of the stimulus which determines the intensity of the expressions. Professor Mosso suggests that nature has been unable to find a substance for brain and spinal cord which should be extremely sensitive and yet should never, under the influence of strong stimuli, exceed in its reaction those physiologic limits which are best adapted to the preservation of the animal.

Be this as it may, fear may be described as a chaotic explosion of emotions due to an irregular, and therefore imperfect, supply of blood to the brain. Every action is preceded, every thought is accompanied, by vasomotor dilatation of the vessels in the brain, the distribution of the area of vascularization being determined either by the controlling area of consciousness or by the repercuted influence of some external stimulus.

The brain itself can originate nothing; at most it seems to us free to choose among the various things presented to it; but under

[1] Editorial in the *Medical Press and Circular.*

the influence of the tumultuous emotions resulting from the stimulation of the brain as a whole, energy is stultified and only trembling weakness remains. The stronger the will the more readily and promptly does it reassume control by withdrawing the blood supply from cortical areas, corresponding to functions for which there is no present use.

Strength of body, it is hardly necessary to remark, does not imply strength of will, the latter being partly hereditary, partly the result of training.

It is useless to tell a man to be brave, but he may be taught. Fear, and its antithesis courage, are, then, only outward and visible manifestations of a more or less perfect control over the vasomotor apparatus governing the nervous system. The controlling apparatus can be educated to a great extent at the instance of the reasoning powers, but there must always remain the hereditary factor of nervous irritability, and if this be in excess the control will necessarily be perfunctory and imperfect.

Larvæ Passed From the Intestinal Canal.[2]

Larvæ of anthomyia scalaris were passed from the intestine of a patient recently under my observation. These larvæ are almost the same in size as the larvæ of the musca vomitoria. The patient has been passing them in large numbers for five months. She also passes a parasite, elliptical in shape, about one-fourth inch in length and one-eighth inch in breadth; brown in color, with eight legs on each side. I put these parasites all together in a glass bottle with meat, covered with cloth to keep out flies. The maggot developed into a fly about the size of a common house fly, but different in color. It resembles the blue bottle-fly, but is much smaller. The flat elliptical insect did not further develop, and hence I inferred that it was not disposed to undergo further changes.

These larvæ undoubtedly possess the power of procreation previous to development into a fly, as there were daily additions to my stock of larvæ before the appearance of flies.

The patient is otherwise healthy. She does not suffer any inconvenience from the larvæ. She has been particularly careful to be certain the ova were not deposited on the anus during defecation. She belongs to a good family and is very cleanly and careful. She has used rectal injections of various kinds to kill and dislodge them. They make their appearance again in a few days after the treatment.

Leidy and Dolly, in the *Annual of the Universal Sciences* of 1890, say: 1. That myiosis vulnerum, narium, aurium, or conjunctivæ, "is always caused by different species of the sarcophagineæ and muscidæ, comprised under the term creophila (flesh flies); 2, myiosis intestinalis is always caused by various species of the genus anthomyia." The former "directly invade natural cavities of the human body with badly smelling discharges, and the different species of anthomyia only directly enter the human body; that is, pass into the digestive canal by means of food." They mention the fly disease of wounds, the invasion of the nose, the ear, the conjunctivæ, etc., and they emphasize the fact that these cavities must be diseased and offensive before the ova are deposited and the larvæ developed.

Finlayson reported to the Glasgow Pathologic aud Clinic Society several specimens of the flower-fly, which had passed in swarms from the bowels of a male patient, which he says, "was caused by the deposit of the ova on the anus, and afterwards passed into the rectum." Langstein refers to a case in which he removed from the bladder, through the catheter, a large number of the larvæ of the blue bottle-fly. Bevill, of Arkansas, mentions a case in his practice in which a boy, after having gastric symptoms and convulsions, vomited the larvæ of the blue bottle-fly. He refers to a case of otorrhea caused by larvæ.

I have reasons to think that the parasites in my case entered by means of food taken into the stomach, and that the larvæ possess procreative power before development into a fly. These larvæ give origin to the eggs in the alimentary canal, and they continue to develop ad infinitum. As to the flat elliptical parasite, I am wholly

[2] JOHN B. ROSSON, M.D., in St. Louis *Medical Review.*

ignorant, and can not find any literature to give me light on the subject.

I saw another case of a similar nature a few days ago. A child, seventeen months of age, passed a worm from the rectum, which resembles a worm passed from the bladder of a patient of the late Dr. Clendenin a few years ago. It is more than one-half inch long and resembles the wood-borer. The discharge of this worm was followed by looseness of the bowels, which stopped by limitation of food to a little milk, and without medicine. The child was well in a few days.

TRANSLATIONS.*

Articular Rheumatism Following Tonsillitis.

Groedel has observed twenty-one cases of tonsillitis followed by rheumatic arthritis recurring many times in the same patient. (*Deutsch. Med. Woch.*, No. 17, 1896.) He regards tonsillitis as a local disease which is the starting point for the invasion of the system by cocci, which excite rheumatic arthritis. A predisposition for acute articular rheumatism must exist if this disease is developed, otherwise the local tonsillar affection may lead to disease of the kidneys, the glands, or it may continue without constitutional disturbance. He believes that injections of the serum of Marmorek may favorably influence the different forms of polyarthritis, and at the same time will demonstrate positively the presence of the agents exciting polyarthritis, especially the pyogenes cocci, which take part in this affection.

Exophthalmic Goiter Treated by Section of Sympathetic Cervical Nerve.

M. Jaboulay has proposed section of the sympathetic cervical nerve where the thyroidean element plays a secondary part. (*Prov. Med.*, No. 17, 1897.) He has performed the double section of the great cervical sympathetic and of the superior cervical ganglion with the following results: Protrusion of eye-balls diminished; palpebræ completely cover sclerotics; pupils, punctiform and over-excitability attenuated; pulse varied between 90 and 100, but palpitation ceased; trembling hardly appreciable.

Cure of Soft Chancre.

Neisser has recently shown that patients at one time infected with syphilis sometimes are troubled with ulcers resembling soft chancre, which later assume the character of tertiary syphilitic ulcerations and heal only after internal administration of potassium iodid. A. Lanz (*Deutsch. Med. Woch.*, No. 17, 1896,) has noticed the same good results in venereal ulcers, which proved through their multiplicity and inoculability as well as the complication of suppurating buboes, and the presence of Ducrey-Krefting bacillus, to be soft chancre. All cases promptly responded to potassium iodid, while local treatment gave no results. A number of the patients never had syphilis.

Treatment of Progressive Pernicious Anemia.

According to J. Dieballa, (*Zeitschr. f. Klin. Med. Bd.*, 1881,) in some cases at least of pernicious anemia, the disease is infectious. He says the irritant is located in the intestines, and either directly or through its products exercises deleterious action on the blood. In a case of a laborer fifty years old, in whom all other well-known remedies were useless, the long-continued administration of salol was followed by marked improvement. The last examination showed the blood to be

*Translated for THE MEDICAL AND SURGICAL REPORTER by Dr. H. Kirschbaum.

nearly normal. He concludes that the exciting cause of the disease in the intestinal tract is destroyed through salol.

One Hundred Cases of Gonorrheal Urethritis, Treated with Janet's Method.

From statistics of experiments made by M. Möller with Janet's method (douching the urethra with solutions of potassium permanganate), it was deduced that this is the best abortive treatment. When used in the first four days positive results are obtained. Also in subacute or chronic cases its action is sure and quick, but the continued use of strong solutions may lead to annoying complications. In the acute stage the treatment is of little use.

Strontium Lactate in Bright's Disease.

Dr. Pick (*Prog. Med. Woch.*, March 9, 1896,) reports forty cases of different forms of Bright's disease treated with strontium lactate, one to eight grams per day. The drug was nearly always well borne, and no unpleasant effects were noticed. In interstitial nephritis the results were not marked. The effect was difficult to observe in acute and parenchymatous nephritis, because in these cases, rest in bed, equable temperature and bland diet will greatly ameliorate the symptoms without considering other treatment. In the majority of patients the albumin in the urine was notably diminished and diuresis increased. The appetite was also improved and subjective symptoms disappeared.

A New Disease in Children.

Observations made by Johannsen and Boeck, independently of each other (*Norsk. Magaz. f. Lægerid*, January 2, 1896), indicate a disease as yet unnoticed or clinically studied. The disease attacks children of about one and a half years of age, and is manifested by an eruption of vesicles around the genitals and anus which rupture and become open wounds. The hands and feet then assume a bluish-red color and are covered with vesicles of all sizes. In a few cases there is a symmetrical distribution on the knees. Itching accompanies the eruption. The children are irritable, restless, and have a wild appearance. Speech and walking power are lost. The eruption appears in crops and is seen at the same time in different stages; one batch healing, the other becoming moist. After eight weeks the eruption ceases, but at the site of the vesicles are noticed firm hard bluish swollen spots. The nails are white and have a fibrous (?) split. Treatment consists in sedative and protective applications, with wine of iron and quinine, and potassium bromid at night.

Just the Thing.

An English journal tells of an amusing rebuke administered to a sharp bargainer, one of those persons who always wish to get more than their money's worth. The offender, in the present instance, was a woman, who sent the following advertisement to a London paper:

"A lady in delicate health wishes to meet with a useful companion. She must be domestic, musical, an early riser, amiable, of good appearance, and have some experience in nursing. A total abstainer preferred. Comfortable home. No salary."

A few days afterward the advertiser received by express a basket labeled: "This side up—with care—perishable." On opening it she found a tabby cat, with a letter that ran thus, tied to its tail:

"MADAM: In response to your advertisement, I am happy to furnish you with a very useful companion, which you will find exactly suited to your requirements. She is domestic, a good vocalist, an early riser, possesses an amiable disposition, and is considered handsome. She has had a great experience as a nurse, having brought up a large family. I need scarcely add that she is a total abstainer. As a salary is no object to her, she will serve you faithfully in return for a comfortable home."—*Youth's Companion.*

Lead-Poisoning from Snuff.

A case of poisoning from snuff adulterated with lead has been discovered in New York, and the tobacconist who sold it has been arrested for obtaining the price of the snuff upon false pretences. As snuff was not a food, he could not be held for selling adulterated food.

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EDITOR
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ASSISTANT EDITOR
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STAFF EDITORS

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PHILADELPHIA, SATURDAY, MAY 8, 1897.

EDITORIAL.

THE PHYSICIAN'S DUTY TO HIMSELF.

The recent graduate in medicine, like the young man in any other walk of life, is too apt to forget that his fund of strength and youth is not inexhaustible, and that his future success depends largely upon the maintenance of his health. Within a few years, however, he learns that the warnings of senility are appreciable before the reputation of excessive juvenility has been lived down. He notes how rapidly the elderly men become feeble and pass away, or, at least, are forced to abandon active practice, and sees, also, a rapid aging in the men whom he has been accustomed to regard as the personification of vigorous maturity. He sees, among his professional acquaintances, his patients and his old friends, great diversities, due, not to years, but to the wear of physical excesses or of the cares of life, or to actual differences in health and strength. He finds himself assuming, unconsciously, the attitude of an elder brother to some man of equal age, but who escapes the influence of experience, and who never matures; again, he speaks as a young man, uttering words of warning in regard to strain of arteries or heart, to another man of his own age as expressed in years.

Especially in this generation is the tendency growing to obliterate social barriers of age, to ignore a mere matter of figures, and to allow each person to follow the practices of callow, mature or advanced age, according to his natural and acquired propensities. The physician, not so much from scientific study as from his opportunities to meet all sorts of people on an intimate footing, learns that age, in the practical sense of the term, is to some extent a

matter of voluntary election, and largely dependent upon the care which each person takes of himself.

The physician has many unfavorable influences, hygienically considered, to contend against, but he has, also, knowledge and opportunities that may enable him successfully to overcome them. He is, aside from the mere vigor of youth, rather more unfavorably circumstanced at the beginning of his career than at any other time. The average medical student is overworked, and not too well fed nor housed. Until very recently practically every medical college, and even now the average college, is by no means a hygienic institution. Its lecture-rooms are badly ventilated, badly lighted, perhaps too cold; its laboratories, and especially the dissecting-rooms, are worse yet. Long hours spent in such atmosphere as most colleges afford do not aid the student to resist the germs of disease which he is especially prone to meet in the clinic, the ward and the morgue. As a rule, the more ambitious the student, or the more dependent on his own exertions, the more do these unfavorable factors affect him.

If he is so fortunate as to secure a hospital appointment, he must usually pass immediately, exhausted mentally, with reduced hemoglobin, and possibly some functional trouble of digestion, or slight inflammatory lesion of respiratory organs, to an existence which involves still closer confinement within doors, broken sleep, exposure to all sorts of infection, and the fatigue of considerable responsibilities. Not rarely, as the result of negligent or vicious management on the part of various hospital authorities, the interne's health is further and unnecessarily affected by lack of privacy, by poor meals, by unsanitary lodging, uncomfortable bedding, and by the utterly selfish imposition of medical attendants who should rather feel that the health and comfort of their younger brethren is a grave moral responsibility.

Private practice usually allows ample opportunity for rest, yet the enforced leisure is not conducive to health. From the push of college or hospital life, the physician is transferred to a galling idleness. He has plenty of time to "eat his heart out," but he cannot feel at liberty to spend his leisure in needed physical and mental recreation, for fear of missing a call. A young physician recently lost his life from inflammation of the appendix just as his practice was beginning, the exciting cause being a quick call to a patient, immediately after a hearty meal. How many of us have run the same risk and escaped, knowing that our pay and, to some degree, our ultimate success, depended on speed, and knowing, too, the chances that one or two well-established practitioners were whipping their horses to reach that same patient before our unaided legs could carry us thither!

But, in spite of the urgency of the calls which come to the tyro in medical practice; in spite of his knowledge that he is summoned simply because he can be gotten quickly; in spite of the extra burden of night calls which he has to bear; in spite of the impositions of those who have no intention of requiting his efforts, it is necessary and possible for him to pass through this period of trial safely—unless he is one of the careless and unfortunate destined to die early in his active life. Much as the young physician needs patients, still more does he need the recreation and the acquaintance which can only be obtained by a reasonable participation in affairs outside his office.

Great as is the need of haste in reaching patients, greater is the need of delay for rubbers in wet weather, and for proper clothing at all times. If a patient demands prompt and careful attention in

the office, so does the stomach require regularity and sufficient time-allowance for its important duties. The man who cannot wait for the doctor to finish a meal is very apt to be an agent or a dead-beat, and, in general, the class of persons who do not consider the reasonable convenience of others are prone to ignore also their financial obligations.

Finally, it may be allowable to refer to the fact that the physician who breaks down his health because he is unwilling to let another have a chance at a prospective patient, is not apt to receive much sympathy from his profession, nor much respect from the patients whom he pursues so eagerly. Some time ago the popular press was publishing an account of a physician who, after having attended one hundred and fifty patients in a single day, fell in a faint upon reaching his home. But only the uninitiated can regard such a man as a hero. Even granting that a large proportion of these patients were seen in the office or in a hospital, so as to minimize the loss of time in transit, such a feat means not simply the sacrifice of needed rest and nourishment, but also avarice and the inadequate performance of professional services. Except in some special case the type of such "heroism" may be, not the gallant steed who falls exhausted after having carried, for many weary miles, some important message, but another animal who finally gluts himself beyond all powers of endurance while standing with his fore-legs widely separated in the trough.

CORRESPONDENCE.

REMOVAL OF POWDER GRAINS.

EDITOR OF THE REPORTER:—In the last issue of THE REPORTER, under *Current Literature*, I noticed an article entitled, "The Removal of Embedded Powder Grains," in which the author says he has found the galvanocautery preferable to anything else. As he does not mention, among other means used by himself and others, a remedy which I have found very satisfactory, it occurred to me that it might be well to give it to the readers of The REPORTER. It is the application of croton oil.

The simplest and best way of applying the oil is on a pointed piece of pine wood, and the most convenient is an ordinary lucifer match. Whittle the end of the match down to a point. Dip the point into the oil and then press it into the powder grain in the skin, rotating it between thumb and finger as it goes in. It should be pressed in well so that the point will penetrate the whole thickness of the stain. In a few days the site of the powder grain will be occupied by a pustule, and when this discharges the particles of charcoal will come away with the pus.

Care should be taken to avoid loading the match too heavily with oil, lest it spread over the skin where there are no stains. The end of the wood should be covered only with oil. If a drop forms at the point it will be deposited on the surface when the match is pushed into the skin, and will produce unnecessary pustulation. Each stain should be treated separately. If there are very many, all should not be done at one sitting. If there are patches of surface under which a number of stains are close together, they should not all be treated at once, lest too much suppuration be induced and large cicatrices formed by the coalescence of contiguous pustules.

The operation is simple and not very painful if done before the punctures made

by the powder grains have healed. If performed later, the epidermis should be punctured with a small bistoury over each grain so that the point of the match can be pressed well into the true skin.

This method is superior to all others I have tried. My experience with the galvano-cautery for other purposes would lead me to believe that its use is attended with much more pain, and that the resultant scars would be larger and hence give rise to more disfigurement. Then, too, the area of action of the oil can, with equal skill, be limited as well as that of the cautery.

DAN'L B. D. BEAVER, M.D.

READING, PA., April 30, 1897.

REMOVAL OF AN IMBEDDED TOOTH FROM THE TONGUE.

EDITOR REPORTER:—This case has never been reported. I have never posed as a surgeon, and, therefore, made no publication of it. The following remarks, however, are at your service, and practically are correct in every respect:

At the battle of Antietam, a soldier, John Sparmaker, received a bullet wound through the cheek. The bullet lodged in the side of his tongue, and was extracted very promptly. I have seen the bullet.

Sparmaker remained at the temporary hospital for some time, but, not recovering his speech satisfactorily, and the tongue remaining in a swollen condition, he was sent to the improvised hospital at Sixth and Master streets, Philadelphia. There he remained for some three weeks, under the treatment of Dr. Goddard. He did not improve, and was discharged.

He went home, and I was consulted. The tongue was considerably swollen, speech very imperfect, and the saliva was very abundant. After a few days' treatment, I passed a silver probe into the patulous wound in the tongue, and, feeling a hard substance, I inserted a small forceps, and drew out a molar tooth. The bullet had evidently pushed the tooth before it into the centre of the tongue. The whole difficulty was removed with the tooth, and an almost immediate recovery took place.

I scarcely know which surprised me most—the failure of the surgeons to probe the tongue, or the fact that the tooth had remained in the tongue without giving rise to suppuration, or some other disturbance, which would have revealed the true cause of the trouble.

J. F. BIRD, M.D.

PHILADELPHIA, May 5, 1897.

ABSTRACTS.

ELEMENTS OF PROGNOSIS IN ALBUMINURIA.*

Two theories have been held with respect to why albumin passes into the urine in disease; one, that normally water containing albumin filters through the glomerular tufts into the capsule and urinary tubules, and that the albumin is subsequently absorbed by the cells of the renal tubules; the other, that transudation from the glomerular tuft is not a mere filtration, but that the epithelial covering exercises a selective function, and, indeed, prevents the passage of albumin while allowing the water to pass.

Experiments to determine which theory is correct are somewhat contradictory, but there is strong evidence in favor of the view that normally the glomeruli do not allow albumin to pass, and if this be accepted, albuminuria must be explained by lesions or functional disorders of the glomerular tuft, or of its epithelial covering. This is, indeed, the more generally received view, and it is more or less applicable to a great number of conditions under which albuminuria arises.

Gubler, Semmola and Robin hold that albuminuria, at least in its chronic forms, is the result of a change in the blood.

* TALBOT JONES, M.D., St. Paul, Minn., in the *Northwestern Lancet.*

Whether there be hyper-albuminosis, dyscrasia, or albuminuria by demineralization of phosphates, it is the blood that is first attacked by disease, the kidney not being involved until later on, when it lets pass not only the changed albumins, but also normal blood serum. Without contesting that in a great many cases the blood is the first to become diseased (infection, poisoning), it is yet to be shown that a kidney which remains healthy lets normal albumin pass.

All inflamed epithelia, without exception, exude greater or less quantities of albumin. The kidney, therefore, in adding albumin to its secretions, merely imitates the example of other inflamed organs. From this point of view we may regard albumin in the urine in many cases of acute nephritis as simply an inflammatory product. In lesions which are degenerative rather than inflammatory, albumin is only present as a subsidiary phenomenon or does not exist (Arnozan).

The prognosis in so-called physiologic albuminuria has been much discussed.

Three theories have been advanced in this connection. According to one of these, albumin enters into the composition of normal urine; according to another, albumin may make its appearance accidently in the urine without any implication of a morbid condition; according to the third theory, albuminuria is invariably pathologic. Among the partisans of the first theory are Kleugden, Senator and Postner. Modern physicians, however, almost unanimously repudiate it.

In the opinion of Capitan, Chateauborg, Leube, Finot and Grainger Stewart, albumin is not normally present in the urine, but may exist without detectable disease, and albuminuria may thus be ephemeral, accidental and physiologic. Facts brought forward in support of this theory certainly seem to show that albuminuria is compatible with robust health, active life and hard work, but this does not show that it is a normal phenomenon. Our organs, or some of our functions, may undergo changes without our general health being influenced thereby; but that we fail to notice any disturbance does not necessarily imply that our condition is normal. Moreover, it would be necessary to keep patients affected with such albuminuria under observation for a long time, fifteen or twenty years, and show that the albumin had disappeared, or that the morbidity or mortality were not greater among them than among other subjects. Until this has been done, albuminuria must be considered a suspicious phenomenon, which in any event points to a defective renal function (Arnozan).

It has recently been shown that bicycle-riding determines the presence of albumin in the urine of a large proportion of riders. The urine of a large number of apparently healthy individuals was examined, first, before riding, when no albumin was present, and second, after a run, when in so large a number as fifty per cent. abundant albumin was found together with tubal cylinders. This albuminuria was so marked that had a medical man been called upon to make an examination of any of these individuals after their ride, and had been unacquainted with the circumstances, he would have been justified in arriving at a diagnosis of chronic parenchymatous nephritis. In eight members of a bicycle club, tube casts of all kinds were found in abundance in all but two, with more or less albumin in all. Five healthy boys also showed albumin in the urine after riding. As many of the members of this society ride the wheel, it is suggested that they examine their own urine before and after a long run. The conclusion arrived at by the writer from whom I have quoted, is that the frequent repetition of such experiences can scarcely fail to terminate in chronic nephritis sooner or later.

With regard to febrile, infective or toxic nephritis, it may be remarked that there are but few fevers that are not associated with at least ephemeral albuminuria. There seems to be a general agreement, however, to attach little or no unfavorable significance to this variety of albuminuria, and the immediate prognosis of infective nephritis is favorable. The kidney, however, sometimes receives therefrom a taint which persists long after the original infection has disappeared. According to Prof. Bouchard, the majority of infectious diseases determine nephritis, a microbe or several associated microbes acting directly on the kidney. Nephritis induced by the

ordinary pyogenic germs is extensively encountered in surgical pyo-septicemia, but when the latter is cured they disappear at once. In addition to the staphylococcus, pneumococcus and Eberth's bacillus, the streptococcus and bacterium coli play a very important role in the development of nephritis (Claudo, Halle).

Talamon points out that microbes act also by their toxins. This may be the case in diphtheria, tetanus and cholera.

Urine poured over nitric acid which shows a distinct layer of uric acid above the albuminous ring, always denotes a comparatively mild albuminuria.

A pale urine of low specific gravity, deficient in coloring matters, copious in quantity, with much albumin in it, invariably indicates an advanced nephritis and implies a hopeless outlook. On the other hand, a highly-colored urine, normal or sub-normal in quantity, with a normal or high specific gravity, indicates, as a rule, a favorable immediate prognosis.

Of all the factors with respect to prognosis in albuminuria, the most important one, perhaps, is that which relates to the total quantity of urine passed. It is far more important to know the total quantity of urine passed per day than the amount of albumin contained in this urine.

In all forms of chronic albuminuria a tendency toward suppression of urine (anuria) is a danger signal of capital importance. In acute nephritis the gravity of the prognosis is directly proportional to the degree of anuria.

Cyclic albuminuria has of late attracted the attention of medical men. The albumin makes its appearance in the morning, increasing until five o'clock in the afternoon, and disappearing more or less completely on the patient retiring for the night. In such cases, if the patient keeps his bed during the day, there is no albuminuria, while getting up in the night provokes it. According to Marie the cause of this curious phenomenon is not the motion, but the upright position. While Pavy, Tiessier, Merley and others consider it a special disease, Oswald, Landi and Talamon hold that it is only a variety of Bright's disease. This intermittent albuminuria, however, is not always cyclic. A characteristic phenomenon on which Mare and Stilling much insist, is the influence of the upright position. From all I can gather from a small personal experience and an industrious search of literature on the subject, the trend of opinion is toward regarding cyclic albuminuria as a manifestation of slight nephritis, which may gradually pass into Bright's disease. Many excellent observers, however (Tiessier, Arnozan, Merley), contend that this slight nephritis is susceptible of being completely cured, spontaneous recovery even being frequently obtained. The prognosis, therefore, is not absolutely unfavorable, and recovery may be looked for when the disease is not of too long standing, when the albumin is not abundant, when the daily albuminuric period is of short duration, and when the neurasthenic symptoms are slight (Arnozan).

The writer next considered the albuminuria of acute nephritis, of chronic hemorrhagic albuminuria, of that due to disturbances in the circulation of mechanical or nervous origin, and also the so-called episodical albuminuria. The prognosis of albuminuria as influenced by the age of the subject was next referred to, a patient 45 years old or over yielding a more gloomy prognosis than a younger subject because degenerative changes commence at this period of life.

Minimum albuminuria, described especially by Talamon, was most gone into; a common characteristic is a small amount of albumin and continuity. It is frequently recovered from; at other times it precedes an attack of arthritis. The albuminuria of genuine Bright's disease was next considered at length. The duration of the disease is subject to wide variations, and may be surprisingly prolonged when proper care and treatment are adopted. The large white and albuminoid kidney causes death to its subjects in a much shorter time than does the small red or contracted kidney.

Bad symptoms are diminution in the amount of urine passed, a very low daily excretion of urea, the occurrence of uremia, excessive dropsy, cardiac failure, and edema of the lungs and glottis. In chronic interstitial nephritis, while the prognosis is unfavorable, much improve-

ment may take place and life may be prolonged in some cases to an advanced age.

The albuminuria due to auto-intoxication is very frequent, and due to a wide variety of causes. Bouchard regards a chief producing cause the defective working of the digestive apparatus, especially dilatation of the stomach. The albuminuria which frequently complicates diabetes is of decidedly bad augury.

Talamon states that among 100 tuberculous patients selected at random at least one-half present albumin in their urine. This author even inclines to the opinion that, at a given moment in the evolution of the disease, there is not a single tuberculous patient whose urine does not contain albumin. He remarks that the albuminuria supervenes as a result of digestive, hepatic or other forms of auto-intoxication, due to the action of tuberculin producing renal congestion by elimination of exaggerated quantities of toxic substances. This author remarks that there are three principal forms of tubercular albuminuria, viz., the purulent, the continuous hemorrhagic and the polyuric. "The prognosis of all three, especially the second, which is rapidly fatal, is peculiarly gloomy. The first indicates a suppurative inflammation, which may be due to multiple causes; the second is the sign of subacute diffuse nephritis with extensive fatty degeneration of the epithelium; the third shows the existence of lardaceous degeneration of the renal arterioles."

Owing to the efficacy of treatment, the prognosis of syphilitic albuminuria is said to be rather favorable. According to Prof. Lancereaux, recovery may be absolute, but is usually only relative, the albuminuria persisting and passing into late syphilitic albuminuria, with renal, atrophy and lardaceous changes in the walls of the blood-vessels.

Both cardiac and broncho-pulmonary albuminuria furnish a very gloomy prognosis. With regard to the albuminuria of gout, it generally shows itself in one of two forms: (1) persons affected with so-called azoturic or lithemic gout, and (2) those having genuine gouty arthritis who pass pale urine, low in specific gravity, poor in coloring matter, and rather copious in quantity. The prognosis in the latter variety is bad; in the lithemic variety generally good. The last proposition, however, does not always hold good.

Dr. Jones said that owing to limitations of time he was compelled to leave out of consideration several well-known varieties of albuminuria, such, for example, as that of lead poisoning, of anemia, of circulatory and nervous asthenia, and also the albuminuria of pregnant women. He closed his paper with a consideration of the curious condition known as hereditary albuminuria. He quoted from Lecroché, Dickinson and Talamon, who have reported cases in which Bright's disease was directly transmitted from parent to child. Moussons, Cassaet and Chambertent have carefully investigated this subject, and have shown beyond all doubt that children born of albuminuric mothers presented precisely the same lesions of their kidneys as were present in the kidneys of their mothers. Cassaet states that in five infants, who died shortly after having been born of eclamptic mothers, he invariably found lesions identical with those presented by their mothers. Auderbert, who subsequently reinvestigated this subject, confirmed in every particular the findings of Dr. Cassaet. In the opinion of Talamon, a large proportion of cases of so-called functional albuminuria (already discussed in this paper) occurring at the time of adolescence, are attributable to nothing else than heredity.

"This hereditary albuminuria of newborn infants, which is sometimes ephemeral, may prepare the way for the development of infective nephritis" (Arnozan).

Strange Senses of Animals.—Certain senses in insects appear to be beyond comprehension. The neuters among the ants known as "termites" are blind, and can have no sense of light in their burrowings; yet they will reduce a beam of wood or an elaborate piece of furniture to a mere shell without once gnawing through to the surface. An analogy is found amoug mammals. A bat in a lighted room, though blinded, will fly in all directions with great swiftness, and with infallible certainty of avoiding concussion or contact with any object. It seems to be able to feel at a distance.—*Medico-Legal Journal.*

THE IDENTIFICATION OF SEMINAL STAINS.*

Dr. Wyatt Johnston recently described a micro-chemical test for seminal stains proposed by Florence, of Lyons. It is briefly as follows: A suspected spot is soaked in distilled water for a few minutes, and to the fluid obtained is added a drop of a saturated solution of iodin in iodid of potash (iodin, 1.65; iodid of potash, 2.54; water, 30). An immediate precipitation of dark-brown rhombic crystals of iodin takes place. Their general shape and appearance very closely resemble those of the so-called hemin crystals, which are obtained from blood stains by Teichman's test.

The reagent and material were placed in my hands for confirmation of the statements made in regard to them. I have gone carefully over the ground, and find the facts to be, in every particular, as stated.

The reaction took place readily both with the material furnished by Dr. Johnston, and that which was prepared under my own direction. The only difficulty encountered was that it was found impossible to dissolve all of the iodin according to the given formula. But after taking up as much as possible the filtrate was found to act perfectly.

Crystals were readily obtained from stains which had been dried for a few days, several months, and two and a half years. Stains from any other of the ordinary fluids, etc., of the body (urine, saliva, milk, fecal material), as well as from leucorrheal and gonorrheal discharges, failed to give the reaction.

Trials were also made from the contents of human testicles, epididymis, and seminal vesicles without any result; with the exception that in one recently excised testicle a few small crystals were thrown down by the fluid squeezed from the epididymis. The fluid from a spermatocele containing large numbers of spermatozoa was also negative. The fluid expressed from the prostate was without action, both when used alone or mixed with the secretion from the seminal vesicles. Of course, with the exception of the testicles, the material came from the autopsy table, and post-mortem changes cannot be ruled out; but the evidence from all of the available material shows that so far as man is concerned the peculiar substance which gives the reaction is formed in the mixed seminal secretion during life.

From the epididymis of a rabbit, however, an abundant precipitation of small crystals was obtained; while from that of a dog there was no result. A preparation was made from a spleen from a case of leukemia, in which were numerous Charcot-Leyden crystals, which are regarded as identical in composition with those formed in slowly evaporated semen. The result of the test was negative. I can throw but little additional light upon the nature of this peculiar substance; and its isolation must be left to the chemists. But it is certain that the test will be of great value in preliminary examinations for medico-legal purposes, and one that should never be omitted in the examination of suspected spots.

As the reagent gives a precipitate with many of the alkaloids (morphin, strychnia, etc.) and their salts, its chief value is a negative one, just as is the guaiacum test for blood stains. So that if a positive result is obtained the further step of demonstrating the presence of spermatozoa must be taken before it can be submitted as evidence in court. For this end, I have made a series of studies to improve the technic and so facilitate such examinations, and the following is the best method which I have found thus far:

A small bit is cut from the cloth on which is the suspected spot, or if it is on a hard surface a little is scraped from it. This is placed on a cover-glass, wet with a drop of distilled water, in which it is carefully teased apart with fine needles and the larger fibres removed. The drop of fluid is carefully evaporated over a flame and fixed to the surface by rapidly passing it through it three times. Upon the film thus formed are poured a few drops of an aqueous solution of eosin, which is allowed to act for a few seconds

* W. F. WHITNEY, M.D., Boston, before the Massachusetts Medico-Legal Society. From *Boston Medical and Surgical Journal.*

and then washed off with distilled water. An equal amount of a strong aqueous solution of methyl green is then poured on and gently heated over the flame until it steams. It is again washed, dried and mounted on a drop of Canada balsam dissolved in xylol. The preparation thus obtained is permanent, can be examined with the highest powers of the microscope, and exhibited in court, if necessary.

When entire, well-preserved spermatozoa are found there is no difficulty in their identification. But when the stains have been dried for some time, it is usually difficult to obtain such, for the heads are then very easily broken off from the tails. And in an unstained preparation, the former can easily be mistaken for spores, or *vice versa*, and the tails are almost invisible from their smallness and transparency. With the method above given, certain differential characters of the head can be made out which leaves no doubt as to their identity. Its composition is stated in the books to be of the same character as the nucleus of a cell (chromatin) and stains with the same reagents. But an examination will show that the whole head does not stain alike. At the base is a hemispherical portion which stains of deep green, while the anterior part and the tail takes the red color of the eosin. This serves at once to identify it, as there is no other oval spore or cell which has an eccentric hemispherical nucleus.

And, furthermore, this not only shows that they are spermatozoa, but also that they are from man, for in no other animal is there a deep staining. For in all the others, the head stains of a very diffuse light green, with only a very narrow zone of a pale red color about it. Then, too, the shape of the head is different, being more pointed in man (wedge- or lance-shaped), while it is rounder (shovel-shaped) in the lower animals. Those of the dog are most like the human, both in shape and details of staining; but a little experience will show differences quite plainly.

With this method, stains varying from a few days to two and a half years old were examined, and in all the differentiation of staining was preserved, and the identification could be easily made.

From the above it is evident that with Florence's test and the double staining of the spermatozoa, there should be no doubt in the mind of the medical examiner of the presence or absence of semen in a suspected spot.

Miniature Bovines.

One of the greatest curiosities among the domesticated animals of Ceylon is a breed of cattle known to the zoologist as the sacred running oxen. They are the dwarfs of the whole ox family, the largest specimens never exceeding thirty inches in height. One sent to the Marquis of Canterbury in the year 1891, which is still living, and believed to be somewhere near ten years of age, is only twenty-two inches high, and weighs but 109½ pounds. In Ceylon they are used for quick trips across country with express matter and other light loads, and it is said that four of them can pull the driver of a two-wheeled cart and a 200-pound load of miscellaneous matter sixty to seventy miles a day. They keep up a constant swinging trot or run, and have been known to travel one hundred miles in a day and night without either food or water. No one knows anything concerning the origin of this peculiar breed, but they have been known on the island of Ceylon, and in other Buddhistic countries, for more than a thousand years.—*Information.*

What We Teach.

We teach the children Danish,
Trigonometry and Spanish;
Fill their heads with old-time notions,
And the secrets of the oceans,
And the cuneiform inscriptions
From the land of the Egyptians;
Learn the date of every battle,
Know the habits of the cattle,
Know the date of every crowning,
Read the poetry of Browning,
Make them show a preference
For each musty branch of science;
Tell the acreage of Sweden,
And the serpent's wiles in Eden;
And the other things we teach 'em
Make a mountain so immense
That we've not a moment left
To teach them common sense.

—*London Standard.*

SOCIETY REPORTS.

Stated meeting, April 14, 1897.

The President, Dr. JAMES TYSON, in the chair.

Dr. JOSEPH PRICE read a paper upon

Some of the Common Causes of Mortality in Abdominal Surgery.

(See page 582.)

DISCUSSION.

Dr. A. FERREE WITMER pointed out the irritation that may result from an operation upon a large mass of sensitive nerve-trunks is to be considered among the causes that may induce shock. He referred to the case of a woman about to be operated upon for uterine tumor, who, though she had been in a debilitated state for some time, was apparently in good condition at the time. She was taking the ether well, and respiration and pulse were good, yet no sooner was the knife placed upon the skin—not even the first layer of muscle being cut through, than she gave a gasp and died. Cases like this do not occur frequently, but they do sometimes occur, and death might, perhaps, be explained by shock of reflex origin.

Dr. JOHN C. DA COSTA expressed satisfaction that Dr. Price advocated so strongly the necessity of perfect cleanliness in operative surgery; that asepsis is really superior to antisepsis. In some cases bad results follow the use of antiseptics. Some ten or twelve years ago, when Dr. Price asked his views as to the conduct of a celiotomy, Dr. Da Costa said: A clean room, a clean doctor, clean assistants, clean patient, and plenty of clean water, and the favorable results have been due to that rather than to antisepsis.

Dr. Da Costa concurred, also, in the necessity for an able, competent nurse, and nowhere more than in a celiotomy. Too many women adopt nursing either as a makeshift or to improve their revenue, without necessary qualifications. Dr. Da Costa was unable to agree as to the necessity of drainage. While Dr. Price had had wonderful results with drainage others get very good results without it. With a clean operation and a clean abdomen, Dr. Da Costa favors closure of the womb. It is a question whether sometimes free drainage does not give rise to post-operative troubles.

Dr. M. PRICE did not think that in the case cited by Dr. Witmer death could be attributed to irritation of any particular nerve-supply; it was his impression that there was some cause for death outside of the surgical operation entirely. He has seen two deaths from chloroform in the hands of most careful men, occurring in perfectly healthy, vigorous women, who died before the application of the knife at all.

Dr. Price expressed astonishment at the number of cases operated on in this country, by competent and incompetent men, and the infrequency of death on the table. Many of the patients are at the point of death at the time of operation, and it would be only a question of a few hours that death would result without it. In a case of strangulated hernia that Dr. Price attempted to relieve, at the urgent request of the family, the patient died on the table, the only case in his experience in which this event occurred.

A reference to the Reports of the Johns Hopkins Hospital will show, for instance, that the acute cases of extra-uterine pregnancy operated on from March, 1890, to February, 1892, were all treated without drainage, save one. Scrutiny of the temperature-chart and of the pulse-record will create surprise that six out of the seven survived. It is a common experience with Dr. Price to see a case of surgery with some one who has attempted to cure the patient with an abdominal operation without drainage. Many of the cases get well, but others, and a much larger percentage than there ought to be, die. A drainage tube has never given Dr. Price a second of uneasiness, as he feels that he has within his grasp the means of preventing many of the accidents and dangers that otherwise the patient might suffer from. If taken care of as it should be—and it should be taken care of by a person trained especially in the work, especially to keep the tube clean, to keep herself clean, to keep the articles that she uses for drainage clean, to keep the patient clean.—Dr. Price believes that the abdomen could be closed over it, and it could stay there indefinitely, for now the tube should be placed properly, as it has a specific purpose. If jammed down in the pelvis, or on top of a fold of bowel or knuckle of intestine, and thus left to do its work (and it may be at the highest point in the pelvis instead of the lowest), it will fail in its purpose; but if placed in the lowest part of peritoneal cavity, where the drainage will necessarily drift to it, it cannot do other than good. Looking over the work of others who use no drainage, Dr. Price felt confident that drainage would have been of service in many cases; and the saving of even only one or two per cent. is an end to be secured; but it must be repeated, the drainage must be done properly, and be carefully and intelligently looked after.

DR. HENRY BEATES said that the matter of drainage has been spoken of rather indefinitely. He has seen the drainage-tube so used that it produced much mischief, and he asked for details concerning the proper management of the tube. In the experience of Dr. Beates the tube is not properly used by many of those who *think* they use it as it should be. The substance that is employed in the tube to act as a capillary drain, as well as the method instituted, is often to be very severely criticised.

DR. JOHN C. DA COSTA said that a recent number of the *American Journal of Obstetrics* contains a chart showing the results of 1700

abdominal operations in the Johns Hopkins Hospital, among which the mortality increased directly in proportion to the amount of drainage.

DR. JOSEPH PRICE said that about 20 per cent. of the cases recorded in the Johns Hopkins Hospital report are ventro-fixations. The statistics include further 37 pus cases, with vaginal puncture and drainage. Of this last number one died and three or four returned for re-puncture and drainage a second and third time. Dr. Price referred to a number of cases in which vaginal puncture was followed by unpleasant symptoms, requiring abdominal section. Of the Hopkins cases two or three required section, some other forms of relief, and two or three were never heard from. Of 11 cases of ectopic pregnancy, with vaginal puncture and drainage, one was lost, and another required abdominal section. The success of drainage will depend upon when, where and by whom the drainage-tube is placed, as well as the after-care. If a small glass tube be preferred it should be placed at the most dependent point, at the dirtiest place. It is a simple matter for any one to place drainage-tube at the bottom of the pelvis. It is the after-care that is most important, and it is a great advantage to have a special nurse for the purpose. To clean the tube once a day is not drainage. Dr. Price details two nurses to look after a patient requiring drainage. One takes care of the patient, and the other of the drainage. The latter does nothing else, and is not even permitted to open the door. She keeps her hands in mid-air and scrubs them. She is not allowed to use a handkerchief, and no menstruating nurse is allowed to take care of drainage. The second nurse devotes herself exclusively to the care of the drainage-tube, which she may clean every half-hour, sucking it out and making it dry, and hermetically sealing it if she wants. The tube may be kept covered by a bichlorid filter, or corrosive gauze or cotton. That tube is raised a quarter of an inch the first night, and kept dry.

It is drainage that has given us the successes of the abdominal surgery of the present day, and it is ignorance of the refined care of drainage in the practice of all condemning it that is giving them the high mortality they have. It will be found that the man in this country who condemns drainage will ask if 15 per cent. is not a good mortality.

In the case alluded to by Dr. Witmer the abdomen was not opened. The patient had taken perhaps five whiffs of ether, gave one gasp and was dead. Surely the result was not attributable to the ether, and surgery had nothing to do with it. Death not rarely results because the operation has been too long deferred. There are conditions in which sepsis has advanced so far as to be incapable of arrest. This fact illustrates the importance of drainage. For instance, in septic peritonitis, puerperal or due to appendicitis, or due to typhoid fever, or due to perforating ulcer, to arrest sepsis is to save life. Ether is a stimulant, doing patients good, bringing up their pulse, and improving their respiration.

DR. MORDECAI PRICE read a

Report of a Case of Laceration Through the Sphincter Ani, with Remarks on Suits of Malpractice.

(See Page 552.)

DISCUSSION.

DR. JOHN C. DA COSTA asked, if all cases of ectopic gestation are tubal, how it would be possible to explain a case that fell into his hands a few years ago. He operated upon a woman for ectopic pregnancy, and immediately, at the end of the fimbriated extremity of the tube, found a large clotted mass, in the middle of which the fetus was situated. The tube of that side was removed and examined very carefully, but no rupture was found at any part from the uterus to the fimbriated extremity.

DR. JOSEPH PRICE said that operations for the relief of sphincter tears and growths about the urethra expose the physician to the risk of a prosecution. Operations for sphincter tears or recto-vaginal fistulæ are not, as a rule, real successes. In the older cases it is common, indeed, for the operator to miss the sphincter entirely. The little half-moon sphincter is not recognized from the deep dimples on right and left. In the soft parts, if the labia are closed, these surfaces may be brought together with the retracted ends of the sphincter muscle at the lower level, and the union here of soft structures is always successful, and with that one may have a fistula above, if the tear in the septum is a deep one, clear up to the cervix. It is just in cases of this kind that the physician is exposed to prosecution, particularly if he fails to get his money at the time of operation. Suits are rarely thought of if operations are paid for primarily, and that, again, is an element in mortality. If the fee is paid the day the patient is operated on, the mortality will be reduced to one per cent. Patients always do best if an operation is paid for.

Ectopic pregnancy always opens up an interesting discussion. The work commenced in Philadelphia, and it was John Perry that contributed the most valuable and, at once, most scholarly book ever written on this subject. In short, every author since has followed Perry. While the Scotch and English try to claim for John Bell the original suggestion that abdominal surgery should be done successfully, and that it was the counsel of Bell to do ovariotomy that stimulated McDowell, this is not so. McDowell had a fellow-statesman in William Baynum, whose two successful operations premeditated, deliberate abdominal sections, done in 1790 and 1799, or nine or ten years antedating McDowell in his oophorectomy, had thrice more influence than the simple suggestion of John Bell, and no one will think for a moment that

McDowell was ignorant that William Baynum had done these two successful operations.

It was John Light Atlee who did the first operation for tubal and ovarian disease in 1843, at Lancaster, Penna., the one specimen weighing fourteen ounces, the other sixteen ounces. The operation was a pelvic one, if tubal and ovarian, and there again the operation belongs to America, and not to Tate or to Hegar or Batty. More than a century ago in New Orleans extirpation of the uterus was successfully performed a number of times.

Dr. Price's experience has been peculiarly fortunate in ectopic pregnancy. He has never seen anything but tubal pregnancy. He considered the case of Dr. Da Costa one of pavilion pregnancy. That is common enough. Of the cases recorded as pelvic hematoceles, and usually alluded to as classic hematoceles, Dr. Price knows nothing, excepting those due to the thrust of a darning-needle. Only recently he had observed a horrible hematocele from the thrusting of a big skewer through the bladder into the rectum. The big wire pin was removed, with a big calculus surrounding it.

Dr. M. Price, in speaking of peculiar cases of extra-uterine pregnancy, referred to a case that went to term, both mother and child still living. The fetus lay against the diaphragm, enclosed only in its amniotic sac, containing clear, pure amniotic fluid. Only a small portion of the placenta was attached to the left tube, the uterus being almost entirely free. Dr. Price believed it to be possible for the placenta to be entirely detached from the tube, having seen a number of cases in which the placenta was so completely adherent to something foreign to the uterus and its surroundings that he knew of no reason why some accident should not detach it entirely. He referred further to a peculiar case of his brother's, of which it would have been utterly impossible to say that it was not an ovarian pregnancy. Ovarian stroma could be seen on part of the tumor, the ovary having been dragged and stretched out over the whole tumor. There was, however, ample evidence and proof that the fetus had originally come from the tube, and that the ovary was only incidentally connected with the pregnancy.

Dr. A. Ferree Witmer read a paper entitled

Is There a Daily Rhythm in Epilepsy?

(See page 549.)

DISCUSSION.

Dr. M. Price asked what progress had been made in the treatment of epilepsy.

Dr. F. S. Pearce said that there can be no doubt that attacks of epilepsy do occur more frequently in the morning hours, as he has found in a recent study. The explanation of this fact probably resides in the greater lack of inhibition at that time.

Dr. A. Ferree Witmer added that he had hardly had sufficient experience to say just what treatment should be used in the epileptic states, but speaking of the outlines of treatment as planned at the Epileptic Hospital, he related that the best results have thus far been obtained from the use of glycerin given in two dram doses three times a day, after each meal. One formula consists of fifteen grains of bromid water q. s. with sufficient glycerin to make a dram. This has not been found as useful, however, as the total omission of the bromid and the substitution of the glycerin. This treatment has been in use for about three months, and the cases of status in particular are helped with regard to both the violence and the frequency of the seizures.

Dr. Joseph Price exhibited a

Small Cyst of the Left Side, Complicating Cystic Degeneration of a Fibroid in the Crown of the Uterus.

The growth had been noticed but a short time before. Suddenly it disappeared without pain, and the woman remained at rest for a while, without discomfort. Following the disappearance of the tumor two operations were performed for malignant disease of the breast. Several years later a tumor was noticed developing in the median line, bleeding irregularly and profusely, and a fibroid was recognized. As she was approaching the menopause, she was urged to leave it alone in the hope that it would atrophy. Subsequently the tumor grew rapidly, and interfered with locomotion, while the pressure-symptoms became quite marked.

On opening the abdomen there were found quite universal adhesions about the sigmoid, a tumor, and an old cyst, but the cyst was wide open, with a hole in it large enough to receive a lemon. The old sac about its entire circumference made a perfect window. It was necessary to free the bowel for at least six inches from the tumor and the sigmoid and hug the bowel closely to do it, and stitch the peritoneal margin of the bowel for some six inches. In removing the uterus entire, it was also necessary to free the bladder from adhesions to the tumor in front.

Dr. Price referred to another case in which he found an old pus-sac of an ovarian abscess and a pus-tube on the left side, precisely the same seat of fixation in the left side of bladder, with a history of leakage from the bladder. It was necessary to cut matter from the bladder as one would cut rot from an apple. These conditions are often disputed, but Dr. Price has seen them in sufficient number to feel that they actually exist. They represent a cystiform degeneration, though not the cystiform degeneration of fibroids that are commonly recognized. The specimen was full of cysts containing fluid of some character. Cystiform degeneration commonly belongs to the large fibroids.

PERISCOPE.

State Requirements for the Practice of Medicine.

Colorado.—State board composed of six regulars, two homeopaths and one eclectic; appointed by governor; diploma from recognized school sufficient; examinations granted non-graduates.

Connecticut.—State board for each of the three schools (regular, homeopathic and eclectic); graduates from recognized schools not examined.

Delaware.—Two State boards (regular and homeopathic); appointed by governor; applicants for examination must have diploma from recognized school.

Georgia.—Three State boards (regular, homeopathic and eclectic); appointed by governor; applicant for examination must be a graduate from school requiring not less than three years.

Illinois.—State board; graduates from recognized schools not examined; non graduates are examined.

Iowa.—State board; diploma from recognized school sufficient.

Kentucky.—Only graduates from recognized schools allowed to practice; diplomas approved by State board of health.

Louisiana.—Two State boards (regular and homeopathic); appointed by governor; applicants for examination must have diplomas from recognized schools.

Maine.—State board; appointed by governor; diploma sufficient.

Maryland.—Two State boards (regular and homeopathic); applicants for examination must have diplomas from recognized schools.

Massachusetts.—State board; appointed by governor; diploma sufficient; non-graduates may apply for examination.

Minnesota.—State board; appointed by governor; applicants for examination must have diploma from recognized school.

Mississippi.—Applicants examined by State board of health; diploma not necessary; must be examined.

Montana.—State board; appointed by governor; applicant for examination must have diploma.

Nebraska. — None except graduates from schools requiring three years or more allowed to practice; no examinations; diploma approved by State board of health.

New Jersey.—State board; appointed by governor; applicants for examination must have diploma.

New York.—Three State boards (regular, homeopathic and eclectic). Applicant for examination must have diploma from school requiring three years or more.

North Carolina.—State board examination required; diploma not necessary.

North Dakota.—State board appointed by governor. Examination required; diploma not necessary.

Ohio.—State board appointed by governor; diploma sufficient, but not required.

Oregon.—State board. Examination required; diploma not necessary.

Pennsylvania.—Three State boards (regular, homeopathic and eclectic). Appointed by governor; diploma and examination necessary.

State board. Appointed by governor; diploma and examination necessary.

South Dakota.—No examination; must have a diploma from school requiring three years or more; diploma approved by State board of health.

Tennessee.—State board; diploma sufficient; without diploma, must be examined.

Utah.—Three State boards (regular, homeopathic and eclectic). Appointed by governor; examination required; diploma not necessary.

Virginia.—State board. Examination required; diploma not necessary.

Washington.—State board. Appointed by governor; examination required; diploma not necessary.

West Virginia.—State board. Appointed by governor; examination required; diploma not necessary.

Alabama.—Examination required regardless of diploma.—*Polk's Medical and Surgical Reporter.*

The close of the late session at Jefferson Medical College was marked very pleasantly by the **presentation from the combined classes** of the school, of a "Thompson lithotrite" to Professor Forbes.

The offering was a testimonial of appreciation of Dr. Forbes's successful labors for the advancement of surgery in this particular direction, and, incidentally, to replace a similar instrument, broken while testing the relative strength of various lithotrites. John B. Conway extended the courtesy in the following words:

PROFESSOR FORBES: Many of the members of the Anatomical Classes, of this year and of last, desiring a few words to be said to you, have asked me to voice them. It was said of old, "the success of the pupil is the inspiration of the master." The words are as true now as then, and we know that you require no other incentive to work, no other inspiration to labor, than that which comes from the success of your pupils, but we would have you believe that we are not unmindful of your arduous labor in our behalf, nor blind to your loving interest in our welfare. We know that your heart always beats close to that of the student, and that your interest in us does not cease when our work with you is ended, and so the men of last year

join with the men of this year in asking that you will accept this gift as a slight evidence of our appreciation of your labor for us, as a token of our gratitude for your unchanging interest in our well-being. In offering this Thompson lithotrite to you, we would express the hope that the period during which you will use it may extend through many coming years, and that you may not be compelled to use it (as you have so recently used a like instrument), in the crushing of willow twigs and crochet needles.

Professor Forbes, acknowledging the compliment, replied:

The feelings of my heart choke my tongue. To say, "I thank you, my friends," which I do most heartily, but feebly expresses the emotion that agitates me. Your beautiful and useful surgical instrument, the occasion and the gracious manner of presenting it, all are suggestive and touch me. The instrument suggests the removal of stone-in-the-bladder at one sitting and without rending the body of the patient, an American procedure, entirely conceived and born of Bigelow in Boston, but tested, and now commanding the highest approbation of the most exacting surgeons in the world. This lithotrite I am most happy to have. It replaces the one I had and was compelled, necessarily, to break in measuring and marking the greatest limit of its strength as indicated by the dynamometer. I shall treasure it as coming from my friends, and as marking with the seal of your approbation, as men, the principles I have advocated and the endeavors I have made to teach you this truly American operation which I have performed so repeatedly and successfully. My professional acts in relation to litholapaxy are before the world, and I stand as our great ancestor stood in the garden, "Naked and not ashamed." When I heard the gracious words of your orator, Mr. Conway, I felt as Adam felt when he had heard the celestial Raphael bidding him keep his loyalty, and pointing The Way, The Truth, The Life.

"The Angel ended, and in Adam's ear
So charming left his voice, that he awhile
Thought him still speaking, still stood fix'd to hear."

Koch's New Tuberculin.—More than five years since Koch announced the discovery of a new treatment of tuberculosis. The hope that at length the most widespread and dreaded of diseases might be successfully combated was soon destroyed, and tuberculin was generally abandoned as an agent, if not positively harmful, at least incapable of effecting the good claimed for it. The reaction, probably, was excessive. From time to time series of cases have been put on record in which the remedy has been shown to produce considerable amelioration. Koch expresses the opinion that, apart from his newer preparations, tuberculin is the best remedy available against tuberculosis. It has obtained a permanent position in veterinary practice as a means of recognizing concealed tuberculosis. Koch lays stress on the fact that all bacteriological treatment must rest upon immunity. In the particular question of tuberculosis the difficulty of inducing immunity constitutes the crux of successful bateriological treatment. Treatment by tuberculin differs from serumtherapy, where immunity is conferred on man by the injection of serum of a highly artificially immunized animal, the patient escaping the risks attendant upon the actual development of immunization in his own body.

Koch and his assistants have labored incessantly to improve tuberculin. The new preparations consist of tuberculins A, O, and R, the last-named being the one recommended for clinical use. Tuberculin A, obtained by extraction from tubercle bacilli by means of one-tenth normal soda solution, acts much like ordinary tuberculin, but the reaction is more intense, and the patient takes more time to become immunized against its action. Tuberculin O is prepared by vigorously pounding in a mortar dried cultures of the tubercle bacillus, adding distilled water, and centrifugalizing in a powerful machine. The opalescent fluid collecting at the top, contains no tubercle bacilli, and constitutes, in the first centrifugalization, tuberculin O. The remainder, containing the *debris* of the tubercle bacilli, forms tuberculin R. This remainder is dried and pounded, distilled water added, and the whole again centrifugalized. This process is repeated until hardly any residue remains. Twenty per cent. glycerine is then added to both preparations to insure preservation. The dose is 1-500 mgr., gradually increased up to 20 mgr.

The most important part of Koch's communication lies in the effects noted upon tuberculous lesions in animals and clinical observations in man. No ill-effects were produced. No reaction is required, hence one of the most serious objections to tuberculin is removed. The clinical results are encouraging. With the caution displayed in earlier communications by Koch "improvement" is reported. The patients have not been under observation long enough to warrant the term "cure." Koch emphasizes the fact that tuberculin treatment is useless in advanced phthisis.

There are two conditions upon which successful bacteriological treatment must depend: (1) early treatment based on correct diagnosis; and (2) in serumtherapy the administration, when required, of large doses of the serum. Not infrequently neglect of these two points has brought discredit on the serum treatment apart from the question of constant strength. Koch seems to give grounds for hoping that tuberculin R may eventually form the basis of a strictly serum treatment.—*Brit. Med. Jour.*

The article under correspondence in The REPORTER for April 24, page 532, entitled "Antitoxin—the New Remedy for Diphtheritic Croup," was by Walter H. Parcells, M.D., of Lewistown, Pa. The name was unfortunately dropped from the article in making up the journal.